TEAM-MATE

TRIOMICRO

TEAM-MATE

Fully Integrated Applications on a Single Disk

Word Processing, Filing, Calculating, and Graphs

Team-Mate is a fully integrated software system. With this system, you have the ability to do word processing, file management, complex calculations, and complete business graphics. Each application's individual features are enhanced by the ability to work simultaneously with a variety of data.

To work with Team-Mate, you will need the following equipment:

1. A Commodore 128 computer.

2. A Commodore 1541 or 1571 drive, or other compatible disk drive.

3. A Commodore RGB monitor, or other RGB monitor, or an 80-column composite monitor with a special cable adaptor. This special cable adaptor can be made by using an RGB connector and connecting the following pins: Pin 1 of the C-128 connector to the ground pin on the monitor and Pin 6 of the C-128 to the composite pin on the monitor.

4. A Commodore or other compatible printer, properly interfaced. The graphics require true Commodore emulation mode in the interface.

LOADING INSTRUCTIONS

Be sure that the key at the top of your keyboard, labeled 40/80 DISPLAY, is depressed. The program will not operate in 40-column mode.

Insert the Team-Mate disk, label side facing up, into the drive and close the drive door. Turn on the drive, monitor, and computer in that order. The program will auto-load, as indicated by the light on the front of the drive. The introduction screen will appear, displaying the introductory menu.

The first screen displays the program name with the copyright notice and the menu. The menu offers two selections:

[1] spreadsheet & graphics

[2] word processing & file management

By pressing the number next to your choice, the appropriate module will be loaded. The HELP screen automatically appears to aid novice users in browsing through various commands.

SYSTEM OVERVIEW

To understand how the system works as an integrated unit, consider those items you would have on your desk and filing cabinet in order to accomplish certain work. Ledgers and file folders would contain various bits of information pertaining to accounts, customers, etc. You would then use the typewriter, calculator, and possibly graph paper, to convert this data into reports, letters, memos, financial statements, etc.

By choosing [1] from the menu, you have indicated that you want to work with ledger paper and the calculator, and possibly graph the results. The spreadsheet is set up like an accountant's ledger, with rows and columns identified by the letters "R" and "C". The intersection of a row and column is called a cell. You can define the size of your spreadsheet, to a maximum of 65 columns and 99 rows. Each cell can hold numbers, labels (such as SALES) or formulas.

The most common uses for spreadsheets include financial statements, budgets, cash flow projections, expense reports, etc. Once a spreadsheet model has been set up, you can change one value or a series of values and all the other values which are functions of the changed value(s) will be recalculated. If you wish any of these values graphically displayed, you can produce either line graphs, bar graphs, or pie charts.

Once the information is created, analysed, and saved, it can be customized into a specific report format through use of choice [2] from the menu. The word processor not only reads spreadsheet information, but accesses information from the folders created with the file manager. The file manager lets you use your computer like a filing cabinet to store and retrieve information. You can use the file manager for mailing lists, inventory, personnel files, collections, just about anything for which you would normally use file folders, an address book, or index cards.

Each entry in the file manager is called a record -- the equivalent of the file folder, book page, or index card. For example, a person's name, address, city, state, zip code and telephone number would make one record. The individual information that makes up the record is called a field. A person's name would be a field, the address would be a second field, and so on. Many records make up a file.

Information stored in the file manager can be organized in any number of ways. You can generate lists and reports by searching for common information or by information which falls within a certain set of criteria. The file may be organized into sub-files. New files can be created which will use the

information contained in the old files without having to type in the information again.

Think of the word processor both as a typewriter and as a report or form generator. As a typewriter, you can use it as a standard keyboard to prepare outgoing letter and memos, term papers, etc. As a report or form generator, it is a powerful lay-out tool. The screen becomes a blank piece of paper which can be cut to any size and which can be programmed to read any file information. To define the size of the paper on which you will be printing, you use the papersize and pagelength commands. You then position references to records and fields on the paper where you would like the information to print. When the report or form is actually printed, the information contained in the fiald will be pulled from the files on the disk and inserted wherever you indicated as many times as you like. These varying formats can be saved as word processing files to be used over and over again.

Command Mode (F1 or C= and C)

Certain commands have been standardized throughout Team-Mate to make system operation easier. In each module of the software, you can be in a variety of modes. However, to give the software a special set of commands or instructions, you must be in command mode. There are two ways to enter COMMAND MODE:

Press the F1 key.

Press the Commodore Logo key (C=) and the C key together.

If you enter command mode while in the word processor, a **W>** appears at the bottom of your screen. An **F>** appears at the bottom of your screen in the file manager, and a **C>** is on the bottom of the screen in the spreadsheet. When you see these displayed, you know that you are in command mode. You can either type in commands or press RETURN to exit.

The commands can be entered as explained in the instructions, telling the system to perform one definite function. Once the function is completed, you will automatically be out of command mode and can enter or edit data.

Help Mode (HELP or C= and H)

To access the listing of commands while in program operation, use the HELP function.

Press the HELP key.

Press the Commodore Logo key (C=) and the H key together.

Formatting a Disk (fd)

You must prepare a raw disk to accept information through a process called formatting. CAUTION: Formatting erases everything on the disk to be formatted! Therefore, be sure to use an unused disk or a disk which contains information you no longer want when using the FORMAT command. Previously prepared or formatted disks can be used to store data.

Enter command mode (F1 or C= and C)

Type fd and press RETURN.
The screen asks ARE YOU SURE Y/N?

Press Y.

You are asked for a disk name up to sixteen characters long, followed by a two digit id number. Type the name you wish to identify the disk, and follow with a unique two digit number, such as 01, 10, etc. The drive will spin for a few minutes and format the disk, preparing it to accept data.

Initialize a Disk (id)

If you have changed data disks, be sure to initialize the disk before saving or loading a file.

Enter command mode (F1 or C= and C)

Type id and press RETURN.

You should also initialize the disk if you are experiencing erratic disk behavior.

Catalog a Disk (ca)

The catalog lists the contents of a disk and shows how much room remains available on the disk. The availability is expressed in terms of blocks free. A block equals 254 characters.

Enter command mode (F1 or C= and C)

Type ca and press RETURN.

If a file has the appendage ".c", it is a spreadsheet file. If a file has the appendage ".p", it is a picture file and can only be loaded through the spreadsheet with special loading commands. If an asterisk appears after a filename, the file has been incorrectly saved. It should be deleted to preserve disk integrity. It is possible to load files directly from the catalog as explained under loading files. If you do not wish to load a file from the catalog, press RETURN.

File Commands (sf, lf, df, mf)

File commands let you save, load, delete or merge files which you have created. When you are working with a file on the screen, it is being held in the computer's memory. Since this memory is very limited and since everything is forgotten once you have erased it, exited the program, or turned off the computer, any file which you wish to keep should be stored on a

formatted data disk. (See command for formatting data disk).

WHEN WORKING WITH A LONG FILE, SAVE THE FILE PERIODICALLY AS YOU WORK. IT IS VERY FRUSTRATING TO BE ON PAGE 6 OF A DOCUMENT, ACCIDENTALLY CLEAR MEMORY OR HAVE A POWER SURGE AND LOSE YOUR WORK.

Enter command mode (F1 or C= and C)

Type sf and press RETURN.

In the word processor, you are asked whether you want to save all the pages or just the screen page on which you are currently working. ALL PAGES OR THIS ONE A/T? If you want to continue working with 99-line files to preserve compatibility with the C-64 or the Plus 4, or you only have one line to save, press T (signifying this page). If you want to save all the pages currently in memory, press A (signifying all pages). Either all six pages or as many pages as you have entered will be saved.

The prompt SAVE FILE: appears at the bottom of your screen. This prompt appears immediately in the spreadsheet. Type in the desired filename up to sixteen characters long. The disk drive will write this new file to the disk, as indicated by the drive light.

If you are working with a file which was previously saved, the filename will be displayed after the prompt SAVE FILE:, and you do not need to type it again. Simply press RETURN to save the file. You will be asked REPLACE Y/N? To replace the old file with the new file under the old filename, press Y. To exit and save the new file under a new filename, press N, and begin the save file process again.

The message REPLACE Y/N? will also appear if you attempt to save a file under the same filename as a file already present on the disk. Do not answer Y unless you want to replace the file already in existence. Lastly, the message appears if the disk is full. If you receive the message and do not remember saving a file under that name, answer N to the message. Use the ca command to run a catalog of the disk and see how many blocks are still free. If the disk is full, insert a new disk into the drive, use the fd command to format the disk if it is not yet formatted and save the file to the new disk.

To work with a file in memory, you must retrieve it from the disk, a process called loading. To load a file,

Enter command mode (F1 or C= and C)

Type lf and press RETURN.

The screen reads LOAD FILE:, waiting for the filename to be loaded. Type the name of the file you wish to load and press RETURN. The drive light indicates that the disk is being searched for the file. If the file is found, it will appear on the screen. Otherwise, the message NO FILE!: PRESS RETURN appears. You can verify the filename by using the ca command to catalog your disk.

Once the disk catalog appears, you can eliminate misspelled filenames by loading files directly from the catalog. To do so, move the left/right cursor key (the key marked CRSR with the left and right arrows) to highlight filenames in the catalog. Once the file you wish to load is highlighted, press RETURN to load the file. In case you have made an error, you are told that you are about to load a file, ARE YOU SURE Y/N?. Press Y to load the file, and press N to return to the working screen file.

If you want to load C-64 or Plus 4 word processing files, simply use the same loading instructions and the 99-line files will load into page 1 of the C-128 version. If you want to load C-64 or Plus 4 spreadsheet files, use the command **load64** instead of the lf command. File manager data files are transparent between the systems and need no special loading command.

Once a file is no longer necessary or to remove an asterisked file from the catalog, you may need to delete the file. To do so,

Enter command mode (F1 or C= and C)

Type df and press RETURN.

The screen reads DELETE FILE: asking for the filename to be deleted. Type the filename and the drive light will again indicate the activity of a file being deleted. Once you have deleted a file, it cannot be restored! Make sure that you want to delete a file before using this command.

The merge file command is only operative in the word processor.

Enter command mode (F1 or C= and C)

Type mf and press RETURN.

The screen reads LOAD FILE:, asking for the filename of the file you want to merge. Type the filename and press RETURN. The file will be added to the bottom of the text of your current screen file. If the file exceeds the 99-line page boundary, the file will be copied in its entirety to the subsequent blank page, and can then be manipulated. The only exception to this rule is an attempt to merge a file into the sixth page of a full file. Since there is no other page on which the file can be merged, the file is appended to the bottom of the existing text on page 6. Any portion of the file which will not fit into this last page is truncated.

Repeat Last Command (C= and the Q key)

The repeat command repeats the last command given the system. To activate it, **press the Commodore Logo key (C=) and the Q key** together.

The last command given the system will repeat. You can repeat this sequence as many times as desired until you press another key. In other words, immediately following an insert buffer command, you can continue inserting the same buffer until you give the system another command or begin entering or editing data. Once the command sequence is broken, the LOGO Q function will not work.

Exit to Menu (ex)

To return to the introductory menu and choose another module with which to work,

Enter command mode (F1 or C= and C)

Type ex and press RETURN.

The system displays a message to insert the system disk (the disk containing the program) and press RETURN.

Re-Start the System (RUN/STOP and RESTORE)

If you wish to re-start the system without having to turn everything off and starting from scratch, simply press down the RUN/STOP and RESTORE keys together. You will not lose your data when you re-start program operation in this manner.

When the word processor screen appears, you know that the program has successfully loaded. The following should appear on the screen.

```
------------------------------------------------
( )




................................................
  ^^  COMMAND INPUT                  ..*..=TAB-POS
LINE = 01  COLUMN = 01     ON PAGE 1
------------------------------------------------
```

The white square in the upper left hand corner is called the "cursor". It is the marker for where your text will appear when you type. Both a line and a column indicator will tell you where the cursor is currently positioned; whenever you move the cursor, these numbers change. The page on which you are currently working is also displayed, along with the filename of the file currently in memory, if the file is a previously saved file.

Remove the program disk from the drive and insert a formatted data disk. (Refer to system commands for formatting instructions if you do not know how to format a data disk). The Word Processor has three modes: the Editing Mode, the Command Mode, and the Print Formatting mode. We'll begin with the Editing mode.

```
----------------- EDITING MODE --------------------
      Press these keys to control the cursor

<-- Cursor left                    Cursor up
CRSR                          CRSR
 --> Cursor right                  Cursor down

F7  or C= and R     Cursor to right side of page

F8  or C= and L     Cursor to left side of page
SHIFT and RETURN

C=  and A           Move cursor up ten lines

C=  and Z           Move cursor down ten lines

C=  and W           Move cursor one word to the right

CONTROL and W       Move cursor one word to the left

CONTROL and D       Delete word at cursor position

CLR  Cursor to         SHIFT CLR  Cursor to bottom
HOME top of file            HOME  of file

F1 / C= and C and im   Insert continuous text

INST Deletes text to   SHIFT INST Inserts a space
DEL  left of cursor          DEL  left of cursor

C= @ Restores text       RETURN   Carriage return
                                  with line feed

CTRL <--      Sets/erases tab position where marked
     <--      Moves cursor to pre-set tab positions
-------------------------------------------------------
```

CURSOR LEFT and RIGHT

The cursor control the horizontal and vertical movement of the screen cursor. **Press the left/right CRSR key once.**

The cursor moves one character to the right.

Hold down the **SHIFT key and press the left/right CRSR key.** The cursor moves one character to the left.

Press and hold down the left/right CRSR key until the cursor reaches column 77. This "automatic repeat" works for all keys. Now hold down the SHIFT and press the left/right CRSR keys until the cursor moves back to column 01.

For faster screen movement, you can use word cursor movement. To move one word to the right, press the **C= and the W**. The cursor advances horizontally one word at a time until you release the keys.

To move one word to the left, press **CONTROL and W**. The cursor will backspace horizontally one word at a time until you release the keys.

It is also possible to move quickly between the left and right hand side of the pages. To move back to the left margin quickly, press any of the following three combinations.

F8 or C= and L or SHIFT and RETURN

To move halfway across to the right side of the page, press **the** F7 key or the C= and the R key together.

CURSOR UP AND DOWN

Position the cursor at line 01, column 01. To move down one line, press the **up/down CRSR** key once.

Hold down the **SHIFT and press the up/down CRSR key**. The cursor moves up one line.

For quicker vertical cursor movement, block cursor controls are available. To move down ten lines, press **C= and the Z keys** together. To move up ten lines, press **C= and the A keys** together. You will continue moving ten lines at a time until you release the keys.

Press and hold down the up/down CRSR key until you reach line 99. This is the last line of your file. Now hold down the SHIFT and up/down CRSR keys until the cursor moves back up to line 01. The text below is an exercise to begin word processing. Press the SHIFT key to type capital letters. Press the RETURN key (<--'s in reverse video) to force a carriage return and line feed, just as you would on an electric typewriter. TYPE THE TEXT EXACTLY; THERE ARE INTENTIONAL ERRORS.

Notice the reverse video arrows where you pressed the RETURN key. These tell the printer to return to the next line. They will not show up in your document when you print it out. With the cursor positioned at line 01, column 01, type the following:

```
---------------------------------------------------------------
What is a Word Processor?<--
<--
A word processor is a "tool" that allows yoo to enter, edit,
print and store text, using a coomputer. A word processor will
save you many hours of typing. Using the 128 keyboard as a
typewriter, you enter characters electronicaly onto a video
screen.<--
<--
<--
<--
A word processor also allows you to change the format of yout
document without having to retype the entire thing. By
inserting a few simple commands in your texxt you can change
margins, page size, line spacing, and print with bld type.<--
---------------------------------------------------------------
```

CURSOR TO TOP AND BOTTOM OF FILE

Press the **CLR/HOME** key to move to the top of file. You are back at line 01, column 01.

Now hold the **SHIFT and press CLR/HOME** to move the cursor to the bottom of the file. You are back to the last line on which the cursor was positioned. Using these two keys you can move from the beginning to the end of your file instantly.

Got it so far? Good. Now, let's fix those errors we created in our sample file.

Using the CRSR keys, move the cursor to line 03, column 42. To correct the spelling of yoo to you, simply position the cursor over the second "o" and press the "u" key. In this way, you can correct mistakes without having to retype everything.

DELETING AND INSERTING CHARACTERS

Move to line 04, column 15. Position the cursor over the second "o" in coomputer. To delete it, press **INST/DEL** .

This deletes text to the left of the cursor. Now move the cursor to line 05, column 73.

To insert a space so you can add the missing "l" to electronicaly, position the cursor over the "y".

Hold down **SHIFT and press INST/DEL** . This inserts a space to the right of the cursor. All you have to do now is type "l". In this way, you can delete and insert characters at the touch of a key.

Let's try the next paragraph. Move the cursor to line 10, column 61. To correct the spelling of yout to your, position the cursor over the "t" and type the "r".

Move the cursor to line 12, column 07. To delete the extra "x" in texxt, position the cursor over the second "x" and press the INST/DEL key.

Stay in line 12, but move the cursor to column 74. To insert a space so you can add the missing "o" to bld, position the cursor over the "l", hold down the SHIFT key, and press the INST/DEL key. Now type "o" in the space.

Press the f8 key, then the CLR/HOME key to move the cursor back to the top of the file, at line 01, column 01.

DELETING AND INSERTING WORDS

To facilitate deleting words and phrases without repeating the use of the INST/DEL key, a control exists for deleting words. First position the cursor over the first word you want deleted.

Press **the CONTROL and D keys** together. The word will be deleted and the other text adjusted accordingly.

If you want to continue deleting words until an entire phrase or sentence is deleted, simply continue holding down the CONTROL and D keys, or use the LOGO Q function described in the section on System Commands. Utilizing this function allows you to delete anywhere in your text without worrying about the text re-formatting itself and without use of the INST/DEL key.

You may sometimes want to drop into the middle of a line and add a phrase or series of sentences. Rather than using the INST/DEL key to open the room necessary for these revisions, you can choose to enter INSERT MODE.

To activate insert mode, type **im** while in command mode and press RETURN. The prmpt line at the bottom of the screen will

display INSERT MODE. When you have completed the desired insertion, and want to return to standard editing mode, enter command mode again as if you were going to enter commands. Instead, simply press RETURN rather than typing a command, and you are back in standard editing mode.

While you are in insert mode, everything you type will move the text to the right of the cursor. What you are typing will be inserted, "bumping" the remaining text down the lines.

RESTORING DELETED TEXT

With the cursor positioned over the "W" of what, press the RETURN key. WHOOPS! The entire line is deleted. NEVER USE THE RETURN KEY TO MOVE THE CURSOR AROUND. If you do, you may find yourself deleting some of your document..

Each time you press the RETURN key, the line or character deleted is saved to a "buffer". This means that if you should make a mistake all is not lost. Simply position the cursor back at line 01, column 01.

Hold down the **C= key and press the @ key.** The Commodore logo key is at the lower left hand corner of the keyboard. The deleted line will be restored.

Since this line is still in the buffer, you can repeat it anywhere you position the cursor. To see this, move the cursor to line 15, column 01. Hold down the C= key and press the @ key again. This command only works with the last line deletion. This means that every time you press the RETURN key a new line is saved to the buffer.

This restore function can also be useful in moving or inserting phrases. Remember that you can position the truncated text anywhere in your text. Let us say, for example, that you have the following text:

> This is an example of moving text using the restore function. To activate this function, press LOGO (C=) and the @ key.

To add a phrase between the first and second sentence without opening space using the insert/delete keys, position the cursor over the "T" in "To activate...". Move down a line, press f1, and type "i1" to insert a blank line. Move up one line and type the following sentence after the original sentence still there, "The restore function restores text which has been erased by

the RETURN key." Use the space bar to move over two spaces. Press the C= and the @ keys together. The phrase will be inserted so that your screen text now reads as follows:

> This is an example of moving text using the restore function. .The restore function restores text which has been erased by the RETURN key. To activate this function, press LOGO (C=) and the @ key.

SETTING TABS

To set a tab position, move the cursor where you want to set the tab, hold the **CTRL key and press the** <-- key (the left arrow at the upper left hand corner of the keyboard). A * will appear at the bottom of the screen, showing what column the tab is set in. Experiment with setting tabs in different columns; you may set as many tabs as you like. A tab is automatically set in column 77, so you never have to set one there. When finished, move the cursor back to column 01.

To move to a tab position, press the <-- key.

Each time you press it the cursor will advance to the next set tab. To erase a previously set tab position, use the <-- key to move to the tab position. Hold down the CTRL key and press the <-- together, just as you did when you wanted to set a tab position. The asterisk at the bottom of your screen will disappear indicating that the tab has been erased.

Now that you have the Editing mode under control, let's move on to the Command mode.

---------- COMMAND MODE ----------

Press F1 or C= and C to enter command mode
Press C= and Q to repeat the last command

CONTROL and 1	Changes foreground color
CONTROL and 2	Changes background color
CONTROL and 3	Changes command line color

Editing Commands

il	Insert line	ib	Insert block of text
dl	Delete line	db	Delete block of text
sp	Set pointer	cb	Copy block of text
ep	Erase pointer	re	Search and replace
cp	Clear all pointers	ct	Clear all tabs
om	Restore old pointers	sr	Search word/phrase

re Search and replace command. Options:
SEARCH ALL PAGES OR THIS ONE A/T?
GLOBAL OR MANUAL G/M?
SEARCH: REPLACE:

cm Clears all six pages of memory: cannot restore

cs Clears page currently on screen: cannot restore

mp Merges page into current workspace page; text added to end of existing text; if merged page too long, text truncated.

pg Move from page to page. Prompt: SELECT PAGE 1...6

sw Swap pages. Prompt: SWAP PAGE 1...6

du Duplicate page. Prompt: DUPLICATE PAGE AT?

c6 Loads catalog into page 6

File Commands

sf	**Save file**	**df**	**Delete file**
lf	**Load file**	**mf**	**Merge file**

Print Commands

***p**	**Print screen**	**pr**	**Print file from disk**

Normally when you use the word processor, you simply type in text, which is displayed on the screen. However, you are able to give the word processor a special set of commands by entering command mode, described in system commands. These commands are all two letter commands that tell the word processor to perform a definite function. Once the function is completed, you may go back to normal typing.

When you enter command mode a **W>** will appear just above the L= at the bottom left hand corner of the screen with the cursor beside it. At this point, the word processor is waiting for you to type in a two letter command, in either upper or lower case.

CHANGING SCREEN/CHARACTER COLORS

If you do not like the color combination of screen and characters, it is possible to change to another combination. Simply press the CONTROL key and the 1 key together to change the foreground color, i.e., to change the color of the text. The CONTROL key and the 2 key control the background color, and the CONTROL key and the 3 key control the color of your command line. You can cyle through the various color combinations by holding the keys down until you find a combination to your liking.

EDITING COMMANDS: INSERTING and DELETING LINES

Move to line 05, column 01. To insert a blank line, enter command mode, type **il** and press RETURN.

Enter command mode again. Type **dl** and press RETURN to delete the line. In this way, you may insert and delete whole lines, instead of doing it character by character, or word by word.

SETTING, ERASING and CLEARING POINTERS

When you finish the end of a paragraph or line, if you press RETURN, you will notice a "<" appear on the right hand side of your screen. This symbol, < , marks the end of a block of text for purposes of editing or block movements. When you use the insert or delete keys, only the block of text is reformatted, using the symbol to mark the point at which text movement will stop. Since you cannot use the delete key to move text around from one line to another line on which a pointer is marked, you may sometimes need to reset the pointers which the program automatically assigns.

To see how this works, move the cursor back to line 02, column 01. In command mode, type dl to delete line two. Cursor back to line 1 and use the tab key to move to column 77. Try to delete from column 77 back. The text "A word processor..." will not wrap around to the top line because the carriage return and pointer are on the first line. Move your cursor to the carriage return and use the SPACEBAR to remove it. Then, in command mode, type **ep** . The pointer will disappear.

Now try to delete the text from line two to wrap it onto line 1. You will see the text begin to move. It is very important that you remove the carriage return as well as the pointer. Otherwise, when you begin to edit the line, the pointer automatically resets itself.

You will notice that the original pointer at the end of the first paragraph is now off by one line. You can reset the pointer by pressing a RETURN at the end of the first paragraph. Another method you can use to set a pointer is to enter command mode and type **sp** .

The next section deals with block movements. Since the program automatically assigns an end-of-block pointer, you may sometimes have several blocks of text shorter than 49 lines which you wish to combine for purposes of block movement. To do so, clear all pointers using the **cp** command to erase the pointers and the **sp** to set the end of block pointer. Once you have cleared all pointers, you might need to restore the pointers to their original condition. In command mode, type **om** and press RETURN.

COPYING, INSERTING AND DELETING BLOCKS OF TEXT

A block of text is a grouping of text and can be up to 49 lines long. Blocks of text may be deleted with a single command instead of having to delete it line by line. Blocks of text may also be moved to other areas of your document with a single command.

The beginning of a block of text is the line on which your cursor is currently positioned. The end of a block of text is marked by a pointer, <. If you position the cursor in the middle of a line, however, the entire line is treated as the first line of the block. You cannot begin a block in the middle of a line.

To move the first paragraph, position the cursor on the first line of the block we want to move, line 01, column 01. Enter command mode, type **cb** and press the RETURN key. The entire block has now been copied to a "buffer", where it will remain until removed by a command.

To insert the block, position the cursor where you want to move the block. For this tutorial, move the cursor to line 20, column 01. Enter command mode, type **ib** and press the RETURN key. The screen will read WORKING in reverse video and the block will copy to where you have positioned the cursor. If there is not sufficient room for the block to be inserted in whole, a message, BLOCK TRUNCATED will appear. If you see this message, only the portion of the block which would fit into the allowable space will appear on the screen page after you press RETURN. The rest of the block, although still held in the buffer, would not fit in the current screen page and must be

inserted in the following page.

You can delete blocks in the same way. Move to line 25, column 01. Notice that when you use the ib function to insert a block, the pointer is not automatically set. Therefore, in command mode, use the sp function to set the pointer. Move the cursor to line 20, column 01. In command mode, type **db** and press RETURN. The screen reads WORKING in reverse video and the block will disappear. This block now replaces the first block in the buffer. As with the cb command, you may insert deleted text elsewhere in the document by using the ib command.

When you use either the cb or db commands, the text is held in the buffer even when you load new files from disk. This lets you copy a block, switch disks, load a file, and insert the block into another file in the document.

When you are designing forms, you will find the copy block command is particularly helpful. Let's say for instance that you were setting up lines using the dash and exclamation points. You first several lines might look like this:

```
!-------------------------------------------------------------!<--

!          !                                  !      !       !<--

!-------------------------------------------------------------!<--
```

To repeat the pattern, use the cp command to clear all pointers. Position your cursor on the first line. In command mode, type cb to copy the three lines making up the format for a lined form. Use the ib command followed by the repeat command to fill the form with as many lines as you want.

SEARCHING AND REPLACING TEXT

One of the main advantages of the word processor is the search and replace function. Using this function, you can automatically search for an occurrence of a specific group of characters or words. You can also search for a particular word and replace it with another word. Let's search for the word "processor" in our sample document.

Use the top of file function to move the cursor to the first line. When the word processor begins to search for a particular character or word, it begins looking at all text FOLLOWING the cursor. If you have the cursor at the end of the file, the search will reveal nothing, since there's nothing to search for.

Enter command mode, type **sr** and press RETURN. The screen

reads SEARCH:. Type processor and press the RETURN key. The word processor in line 03 is immediately highlighted in white. The screen reads CONTINUE Y/N?. Press the Y key (for yes) and the next occurrence of the word is highlighted. The screen reads CONTINUE Y/N? Press the Y key again and the next occurrence of the word is highlighted. Press the Y key once more and you'll be back in the normal editing mode, since every occurrence of processor has been found.

Notice the computer did not find Processor. That's because of the capital P. Remember to always type the word you are looking for the exact way it appears in your text. Now replace the word **Processor with Editor.**

First move to line 01, column 01. Enter command mode, type re &nd press RETURN. The first question you are asked is SEARCH ALL PAGES OR THIS ONE A/T?. If you only want to edit the screen workspace, answer with a T, signifying THIS PAGE. If you want to edit all the pages, answer with an A, signifying ALL PAGES. The second question asks GLOBAL OR MANUAL G/M?. If you choose a GLOBAL SEARCH AND REPLACE by pressing G, the system will find every instance of the characters, words, or phrases being searched and will replace them automatically with what you indicate. If you choose a MANUAL SEARCH AND REPLACE by pressing M, the system will stop and highlight every instance of the characters, words or phrases being searched. As each match is highlighted, you are asked whether you want to CONTINUE Y/N?. If you press Y, the search will continue to the next match. If you press N, the search will stop. You are then asked whether you want to REPLACE Y/N? A response of Y will replace the highlighted text, a response of N will leave the highlighted text in its original state.

Use caution when utilizing the GLOBAL SEARCH and REPLACE. If you choose to replace a common character string, such as "the", every instance of "the" will be replaced including the "the" in their, theater, whether, etc. In these instances, it is preferable to use the MANUAL SEARCH and REPLACE.

Once you have answered the first two questions, the system will ask SEARCH:. Respond by typing Processor and press RETURN. You can type up to 68 characters, including spaces. You are then asked REPLACE:. Type Editor and press RETURN. Again, you can type up to 68 characters, including spaces.

The search and replace function can be quite useful in eidting. It does operate on reverse video commands, which are described in the print formatting section. Therefore, if you want to change margins after preparing a text, you can use the search and replace to have the system retype your margin settings for you as opposed to manually changing them. Another use of the search and replace would be a reverse video command which you might use repeatedly, such as the BOLDTYPE command. Rather than type it every time you want to utilize it, use a special symbol like the the £ sign. Then search and replace the £ sign with the boldtype command throughout the text. This same techniques is useful if you often use a phrase, word, etc., such as in script preparation or descriptive papers. Since the search and replace operates on up to 68 characters, it can be used to change the order of phrases in sentences as well.

Another editing use is to insert or delete phrases without the insert and delete keys. You might want to replace "This is an example" with "The following is an example". Doing so with the re command will be much faster than using the insert key and then typing it in the open space. Since the re command does recognize spaces, you can also replace "The following is an example" with a carriage return and remove the entire phrase.

CLEARING TABS

To clear the tabs you set earlier, enter command mode, type ct & and press the RETURN key. All of the asterisks will disappear, and you may now set new tabs.

CLEARING MEMORY

Be careful when using this command, as it erases all six pages in computer memory. Make sure you have already saved your file to disk, or really want to clear memory and start over. The only thing retained after you type a cm command is the text in the block buffer.

To clear the screen, enter command mode, type cm and press RETURN. The screen reads CLEAR ALL Y/N?. This is your chance

to reply with an N if you decide not to clear memory after all. For now, type Y and press the RETURN key. The screen will immediately clear and you may start fresh.

CLEARING WORKSPACE

To clear just one page and retain the other five pages in memory, enter command mode, type **cs** and press RETURN. The screen reads CLEAR SPACE 1..99 Y/N?. To clear the current workspace page, press Y. If you deco clear the workspace, press N.

PAGE HANDLING

When you first enter the word processor, you will notice ON PAGE 1 at the bottom of the prompt line. There are a total of six pages, each page containing 99 lines to facilitate compatibility with C-64 or Plus 4 files. To move from one page to another, enter command mode, type **pg** and press RETURN. You're asked to SELECT PAGE 1...6. Type the number of the page you desire and the workspace screen will shift to that page.

You may sometimes wish to move text from one page to another. To accomplish this, position yourself on the page you want to move. Enter command mode, type **du** , and press RETURN. You are asked DUPLICATE PAGE AT? Type the number of the page where you want to copy the text and press RETURN. The workspace now appears on the page desired and you can use the cs command to clear the space and continue working.

If you want to swap text, interchanging one page with another, you can do so as well. Enter command mode, type **sw** , and press RETURN. You are asked SWAP PAGE 1...6. Type the number of the first page you want swapped. You are asked again SWAP PAGE 1...6. Type the number of the second page you want swapped. The two pages you have typed will have changed page position, re-ordering your document.

When you want to append a page to the bottom of the current screen workspace, enter command mode, type **mp** , and press RETURN. You are asked to MERGE from PAGE 1...6. Type the number of the page you want to merge into the current screen page and press RETURN. The page indicated will be appended. Any portion of the page which does not fit into the 99-line page limitation will be truncated.

If you are transferring data between the C-64 and the C-128, and want to preserve data compatibility between the two computers, then you should save each page as its own 99-line file when working with the C-128. These files can then be used on the C-64 or Plus 4. If, however, you want to convert existing C-64 or Plus 4 files to longer C-128 files, use the load file command

to load the first 99 line in PAGE ONE. Then, move page one to page two. Use the clear space command to clear PAGE ONE again. Load another C-64 file, and move it to page three, etc. In this way, you can reconstruct a longer document from C-64 files. Another method is to use the load file command in PAGE ONE, and use the merge file command on subsequent pages. If you load one C-64 or Plus 4 file into page one, and then attempt loading another one without moving page one, the new file will load over the old file. Therefore, you must move the file to another page or move to another page and use the merge file command.

PRINTING THE DISK CATALOG

To print the disk catalog or directory, load the catalog into page 6. Enter command mode, type **c6** , and press RETURN. Use the pg command to advance the screen workspace to page 6. You can then print the catalog using the *p command discussed below.

PRINT COMMANDS

After you have written your letter or report, you will probably want to print it. Make sure your printer is properly interfaced with the Commodore 64, and is turned on.

Load the file **demo** from disk.

To print the current screen file, enter command mode, type *p and press the RETURN key. You are asked PRINT ALL PAGES OR THIS ONE A/T? To print only the current screen page, type T and press RETURN. To print all six pages, type A and press RETURN. To print a file you have already saved to disk, enter command mode, type **pr** and press RETURN.

When you print a file from the disk, the screen text will be automatically saved and the screen will read SAVING..TW (the TW stands for temporary workspace). The screen will then read LOAD FILE:. Type demo and press the RETURN key. The contents of the file will be loaded into the computer and printed.

Notice the printed copy doesn't have any margins. That's because we haven't set any formatting commands yet. But, since you now have the Command mode under control, let's move on to the Print Formatting mode.

---------- PRINT FORMATTING ----------

This mode is in reverse video

CTRL 9	Enter Print Formatting Mode	CTRL 0	Exit Print Formatting Mode

TYPE: (XX=a number)

Margins

lmargXX;	left margin	rmargXX;	right margin
justify	flush right margin	nojustify	turns off justify
nowrap	turns off word wrap when printing	wrapon	turns on word wrap again for printing

Pages

papersizeXX;	Sets paper size to XX;	pause	Stops printer
pagelenXX;	Sets text length XX;	#page	Prints page number
pagepause	Printer stops end of every page	set#pgXX;	Sets beginning page number
nextpage	Forces new page	lsXX;	Sets line spacing(to 10)
linkfile	Joins files into document	center	Centers text on line typed

Headers/Footers

hd 'cccccccc' Install header up to 73 alphanumeric characters

ft 'cccccccc' Install footer up to 73 alphanumeric characters

---

You've probably been saying to yourself: "This is great, but how do I get my printed copy to look the way I want it? What I see on the screen is not what I want to print out."

The Print Formatting mode is the mode you enter when you want to give the computer certain commands to format a document. These commands control the final appearance of your copy and are only executed when a document is printed. They are typed in lower case and will not show up in your printed copy. Since these commands are entered as text, there has to be some way for the computer to distinguish the format commands from the actual body of text itself. This is done by typing the format commands in reverse video.

It is more convenient to type these format commands at the very beginning of your document, but they may be embedded at any time. Sometimes you may want to change margins to accomplish a block indent, set bold type, or center lines at different places in your document. You can either type them in as you go or set them later through the use of the Insert and Delete keys and the insert line command. The format commands must be typed BEFORE the text you wish to affect.

ENTERING and EXITING PRINT FORMATTING MODE

First, let's make some room at the top of your present screen file, demo. Move the cursor to line 01, column 01. Enter command mode, type **il** and press RETURN. Now you have a blank line open to enter format commands in reverse video.

To enter the Print Formatting mode you must turn on reverse video. Hold down the **CTRL key and press the 9 key.**

lmarg10;:rmarg70;:justify: (press the RETURN key)

Now move the cursor to line 09, column 01 (the blank line between the two paragraphs) and type:

lmarg20;:rmarg60;:nojustify: (press the RETURN key)

To exit the Print Formatting mode you must exit reverse video. Hold down the **CTRL key and press the 0 key.**

Notice the letters you have entered are reversed from the normal text. This is what we mean by reverse video. You have just told the computer to set the left margin of the first paragraph at column 10, the right margin at column 70, and to justify, or give the printed copy a flush right margin. With the second format command, you told the computer to set the left margin of the second paragraph at column 20, the right margin at column 60, and to turn off the flush right margin.

Notice the SEMI-COLON and COLON placed between commands. THESE ARE VERY IMPORTANT! The SEMI-COLON is ALWAYS used after a number (like 10 and 70), and the COLON is ALWAYS used to separate multiple instructions on a line.

To see the printed text, enter command mode, type *p and press the RETURN key. Notice the text is printed exactly as you told the computer to print it.

Note: Do not attempt to use the *p with the linkfile command. The only file which will print is the file in memory.

MARGINS

lmargXX;

Typing this sets your left margin at column XX. Simply substitute the XX with the column number you want the left margin to begin at (such as 05, 10, 20,etc.).

rmargXX;

Typing this sets your right margin at column XX. Substitute the XX with the column number you want the right margin to end at (such as 60, 70, 75,etc.).

justify

Typing this gives your printed copy a flush right margin with all of the letters lining up in the last printed column. The words in the line will be appropriately spaced to achieve this.

Note: A justified right margin is typically used in formal documents such as term papers or reports; and an unjustified, or ragged edge, margin for informal documents such as letters and memos.

nojustify

Typing this turns off the right margin justification.

papersizeXX;

Typing this tells the computer what size paper you are using. The word processor automatically defaults to an 8.5 X 11 sheet of paper (which contains 66 lines), so you don't have to use this command unless you're using a different size paper. Substitute the XX with the number of vertical lines that make up the paper (such as 66). Assume that for every inch of paper size, there are six (6) lines.

pagelenXX;

Typing this tells the computer how many lines to print before it starts a new page. This allows you to set the margins at the top and bottom of the page. A command of pagelen55; would mean that 55 lines of text would be printed, then the printer would line feed 11 lines before beginning to print the next page. When you are ready to print your document, position the first page of paper where you want the printing to start in each page. Substitute the XX with the number of lines you want printed on each page (such as 55).

Note: the page length must always be smaller than page size number.

pagepause

Typing this tells the printer to pause at the end of a page. This allows you to insert paper if you are using single sheets as opposed to continuous feed paper. If you don't use this command, the printer automatically continues to the next page.

nextpage

Typing this forces the printer to advance to the next page. This is useful when you end something in the middle of the page and want to start the following text on the next page.

linkfile'type filename here'

Typing **linkfile** will link separate files into one document when you print. The file which you reference in quotation marks should be the filename of the file to which you are linking. For example, at the end of 'file1' you type linkfile'file2' so that file 2 will print in sequence after file 1. The linkfile'file2' must be on a separate line by itself with no other text or formatting commands on the line. In other words, it is typically the 99th line of a file and is the only thing appearing on the 99th line.

Type linkfile at the end of each file to link the next file to it. There is no limit to the number of files which can be linked together. Also, any formatting instructions in the first file will carry over to the next file, unless you change the formatting along the way.

You can link files on multiple disks. Insert the **pause** command just prior to the linkfile command. When the pause occurs, simply switch disks, press RETURN, and continue printing. Use the pr command to print linked files. You cannot link a screen file.

pause

Typing this causes the printer to pause until you press the RETURN key to continue. This is useful with the linkfile command and for changing print wheels (if you have a daisy wheel printer) in the middle of printing, or for switching disks when printing files. The printer will pause every time it reads a pause command embedded in the text. When the printer pauses, switch disks or daisy wheels and press RETURN.

#page

Type this when you want the computer to automatically number your pages at the bottom margin during printing. The numbering begins at Page 1 and continues to increase the page count by one throughout the text. If you desire to begin at any other number but 1, use the following command.

set#pgXX;

Type this when you want to begin numbering at any page but 1. First turn on paging with the **#page** command. Be sure to follow with a colon as a separator.

Type **set#pgXX;** , substituting XX for the number with which you want to begin paging (such as 02, 05, 10, etc.).

lsXX;

Type this when you want to set the line spacing at anything but single spacing. Substitute the XX for the number of lines you want spaced between printed text (such as 02 for double spacing, 03 for triple spacing). The maximum amount of lines you can space is 10.

center

Type this before any line you want to center on the printed page. It must be typed on the same line you want centered.

hd'cccccccccc' & ft'cccccccccc'

The hd installs a header, while the ft installs a footer. A header is a phrase which prints at the top of the page and is left margin justified. It will print on each and every page of a long document. A footer is a phrase which prints at the bottom of the page and is left margin justified. It will print on each and every page of a long document.

You can insert the reverse video header or footer anytime within your document, however, it will only be activated from the page on which it appears forward in your document. The quotation marked used are the single quotation marks, accessed by pressing the SHIFT key and the number 7. Any alphanumeric characters up to a maximum of 73 characters appearing between the quotation marks will be printed on each page of your document.

----------PREVIEWING PRINTED FORMAT----------

```
*v      View screen   /   View file manager merged files
pv      View linked files from disk
```

Now that you have learned how to format your printed pages, you may be wondering how to view these formatted pages before you print so that your printed copy appears the way you want. The print preview function lets you view your page breaks in a linked document so that you can eliminate straggling one-liners at either the end or beginning of a page. In addition, special commands, such as underlining or bold printing, are shown in reverse video. If your margin is justified, you can check the right side of the page for a flush margin. Indented blocks are also viewed so that you can be sure that you have reset your margins after the block has been indented.

There are two variations to print preview mode, just as there are two variations to the printing command. To view the file currently on the screen, enter command mode, type ***v** and press the RETURN key. You are asked PRINT ALL PAGES OR THIS ONE A/T?. To preview only the current screen page, press T. To preview all six pages, press A. Your screen will go blank and the bottom of your screen will display the following.

```
                    I-ROW,E-ROW,E-PAGE          1

(PRINT PREVIEW) WAITING
PRESS RETURN, [C=] & [S], Q -- FOR CONTINUE, SPEED, EXIT
```

The WAITING prompt signifies that the system is waiting for you to press RETURN. Press the RETURN key, and you will see the row counters change. The left row counter (I-ROW) indicates the row of your actual file on which the line of text is located. If you need to edit a line you should make note of the row so that you can return to it in your file. The right row counter (E-ROW) indicates the row of your printed text, as defined by the papersize command.

The Commodore Logo Key, C=, and the S key are used to vary the speed

at which you can preview the text. Pressing the Logo key and the S key twice toggles the speed from slow to fast. Pressing it twice again toggles the preview mode back to slow speed.

To quit the preview and return to the text screen, press Q three times. This exit function allows you to make a correction and then re-enter preview mode. Alternately, you can jot down corrections and make all your corrections at one time before previewing the text again.

The immediate preview mode, *v, is also used to review word processing files which are merged with file manager records. If you have designed a label or form and are unsure of the papersize or of the placement of certain fields, a preview will demonstrate whether your form or label has been designed in the proper manner. If it is not correct, you can correct your form or label before actually printing any report or label listing.

To preview a file from disk or a document composed of several linked files on the disk, enter command mode, type **pv** , and press RETURN. When you preview a file from disk, the screen text will be automatically saved and the screen will read SAVING...TW (the TW stands for temporary workspace). The screen will then read LOAD FILE:. Type the name of the file to be previewed or the name of the first file in a linked document, and press the RETURN key. The contents of the file will load into memory and the screen display will be as above. Continue as if in regular preview mode. A solid black line across the bottom of the screen indicates your page breaks. You will need to hit RETURN in two instances. The first is after a new file has been loaded from disk. The second is a file containing a format command of pagepause, in which case, you will need to press RETURN at each page break.

SPECIAL PRINTER COMMANDS

These commands insert ASCII (American Standard Code for Information Interchange) characters in your text. The ability to insert these characters allows you to take advantage of different printer features such as enhanced printing, under- lining, and boldface type. They are typed in reverse video just like all the other formatting commands.

For example, to cause enhanced printing on the Commodore 801 and 1526 printers, you would:

1. Press **CTRL 9** to enter Print Formatting mode.

2. Type **ascii4;** to turn on enhanced printing.

3. Press **CTRL 0** to exit Print Formatting mode.

4. Type **"this will be enhanced"**

5. Press **CTRL 9** to enter Print Formatting mode.

6. Type **asc15;** to turn off enhanced printing.

7. Press **CTRL 0** to exit Print Formatting mode.

8. Type **"and this will not"**

Your screen should look something like this:

asc14; This will be enhanced asc15; and this will not.

These special printer commands, like all other reverse video commands, will not show up in your printed copy. Remember to turn the print command ON before the text you want to affect, and to turn the print command OFF when you want the text to return to normal.

The word processor can process up to sixteen ASCII commands for every 80 character line. Multiple ASCII commands may be necessary with both Commodore and non-Commodore printers.

The asc27; is the escape (sometimes referred to as ESC in printer and interface manuals). This is normally part of the sequence necessary to access special printer functions, such as underlining or bold print. With some interfaces, you need two escape sequences, for instance, "asc27;27;53;". The interface manual will instruct you if two escape sequences are necessary.

When utilizing more than one ASCII code which needs an ESCAPE, asc27;, you must string together the reverse video ASCII commands with colons to separate each command. The system needs to know that an escape is being sent with each code. Therefore, the proper format is "asc27;66;:asc27;37;".

Some printers, such as the Epson, use the same code to begin and end a special printing feature. The ASCII code is followed by a 0 or 1 to indicate turn off or on. If this is the case, type "asc27;xx;:asc27;48;" 48 being the ASCII value of the number 0. Type "asc27;xx;:asc27;49;" 49 being the ASCII value of the number 1. In these examples, the "xx" refers to the actual ASCII code for the feature as indicated in the printer manual.

Due to the variety in printers, some will underline blank spaces, others will not. If you indicate an underline and obtain no underlining or scattered underlining in your hard copy, use the following procedure to compensate for the blank spaces. To make a blank underline, such as after a name, type NAME. Then turn on reverse video. Type the ASCII code for underlining. Turn off reverse video. Type a period to mark the beginning of the underlining. Type some spaces for the length of the desired underline, then type a period (or any other printable character).

This last character is needed to end the underline when preceded by blanks. To end underlining, turn on reverse video, and enter the ASCII code for ending the underlining. With the Commodore DPS 1101, for example, (R = reverse on, O = reverse off).

NAMERasc27;69;0 . . Rasc27;82;O

Commands for 801, 802, 803 and 1526 Printers

asc14;	**Turns on enhanced print**	**asc15;**	**Turns off enhanced print**

Commands for DPS 1101 Printer

asc27;79;	**Bold print**	**asc27;69;**	**To underscore**
asc27;87;	**Shadow print**	**asc27;82;**	**To turn off underscore**

asc27;38; Turns off bold or shadow print

NON-COMMODORE PRINTERS

If you are working with a non-Commodore printer, you may have either a "plug-compatible" printer or utilize a variety of hardware interfaces. In either case, software in the interface or plug enables your computer and printer to work together. One reason people purchase a non-Commodore printer is to be able to do bold or shadow print, italics, etc.

Depending on the interface, you may need to be in either transparent or Commodore / 1525 emulation mode. The interface manual will instruct you on which switch you need to turn on or off. With most interfaces, the conversion of Commodore ASCII to standard ASCII is not performed when working with the word processor in transparent or non-emulation mode. Yet you must be in non-emulation mode in order to access the printer features which Commodore printers do not have. Most plug-compatible printers do perform the conversion from Commodore ASCII to standard ASCII.

The ASCII codes for a particular function will be detailed in your printer manual. For instance, with Epson-type printers, the code for turning on EMPHASIZE print is 69, 70 to turn it off. If you attempt to access these codes, and get no results or get funny results, you should perform the ASCII conversion yourself.

As a quick rule of thumb, if the ASCII code is between 64 and 95, add 32 to the code indicated in the printer manual. If the ASCII code is greater than 95, subtract 32 from the code indicated in the manual. ASCII codes less than 64 do not need to be converted. In the prior example, for instance, you would use, ''asc27;101;'' instead of ''asc27;69;'' to turn on emphasize print.

A quick, though not all inclusive summary of printer features which may require special ASCII commands, include bold, underline, shadow print, italics, compressed or expanded print, superscripts, and subscripts. The TEAM-MATE program has been tested with Epson and Epson format type printers (such as the Star Gemini, Panasonic, Seikosha,etc.), with the Okimate 10 printers, with Smith-Corona printers and with the CARDCO, Microworld, and XETEC interfaces with success. If you are having problems, please call our customer support line, indicate that you are having a non-Commodore printer/interface problem, and we will help you troubleshoot over the phone. Our customer support line is (714) 832-6719

FILE MANAGER

One of the most common uses of a file manager is a mailing list. Instead of flipping through pages and pages to find a particular entry though, all you will have to do is type one command and the computer will find the information for you, in seconds. You will also be able to save your files to disk and print them out.

Each entry in the file manager is called a 'record'. A person's name, address, city, state, zip code and telephone number would make one record. The individual information that makes up the record is called a 'field'. A name would be one field. The address would be the second field. The city would be the third field, and so on. Many records make up a 'file'. A list of all your friends names, addresses and phone numbers would make one file. To exercise some of the features of the file manager, let's create a mailing list ourselves.

To activate the file manager, enter command mode, type **fm** and press the RETURN key.

Your screen reads: INSERT FM FILE DATA DISK AND TYPE FM OR NEWFM

This is your first file, so you don't have any files saved on disk to load into the computer. If you did, you would insert the disk with the files you want and type **fm** .

Type **newfm** and press the RETURN key. Like the word processor, all commands may be typed in either upper or lower case.

----------COMMAND MODE----------

Press F1 or C= and C to enter comand mode

newfm **To open, format, and define a new file**

fm **To activate file manager or retrieve existing file**

oldfm **To format a newfm data disk, duplicating the same**

FILE MANAGER

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Type **newfm** and press the RETURN key. Like the word processor, all commands may be typed in either upper or lower case.

----------COMMAND MODE----------

Press F1 or C= and C to enter command mode

newfm **To open, format, and define a new file**

fm **To activate file manager or retrieve existing file**

oldfm **To format a newfm data disk, duplicating the same field titles and lengths as the last fm data disk present in drive**

format **To format data disk: file name, disk i.d.**

delete **Delete word processing / spreadsheet files**

Accessing Records

rcl; **Move to first record** **sr** **Search for an item**

rcXXX; Move to specific record (XX;)

rvXXX; Review records (Start at no. XXX;) Press S to pause and Q to quit

nr Move to next record

makekeyfield Make key field file for faster record access

loadkey Load key field file for faster record access

findkey Search a file by key field reference

showkey Display contents of key field file

Changing/Modifying Records

ud Update current screen record

udXXX; Copy record to another record (XXX;)

repeat Duplicate reference record anywhere in file on a single record or range of records

&&& Enter in field one to delete record

crunch Compresses all deleted records to restructure file and open room for records

Sorting Records

dsXX; Disk sort on field XX;

dsXX;XX;XX; Disk sort on up to three different fields (XX;=field numbers)

piXX; To create a file that meets a bottom and top set of parameters based on a given field (XXX;)

highrcXXX; Sets an upper record limit on sorts, searches, reviews and reports. (XXX = record number)

resetlist Restores a file to its original order

Restructuring / Restoring File Manager

transfer Creates sequential transfer workspace file from existing file manager dta file

merge Merge sequential transfer workspace file into formatted file manager data file

setbam Return the file manager data disk to proper BAM setting after a collect or validate

---

AT THIS POINT, REMOVE ANY DISK YOU HAVE IN THE DRIVE AND INSERT A NEW, BLANK DISK. This is the disk you will save your mailing list on. If you save your file manager files to your word processing disk, the new files will write over the old files, erasing them. You CAN put word processor files on a file manager disk. You may have a particular application that needs to access both sets of files, and having them on one disk will save you from switching file disks back and forth.

CREATING A FILE FORMAT

The screen reads: **ENTER FILE NAME (1..16)**

Every file must have a file name. The name may be up to 16 characters long. Type: **mailing list** and press the RETURN key.

Note: If you make a mistake typing, press the **INST/DEL** key to delete any wrong characters, then continue typing.

The screen reads: **ENTER NUMBER OF FIELDS 1..17**

Remember that individual fields make up one record. For our example, you will need eight fields: first name, last name, address 1, address 2, city, state, zip code, and telephone number. These are the fields that make up one person's record. The maximum number of fields you may have are 17. With the cursor at 01; type: **08** and press the RETURN key.

The screen reads: **ENTER FIELD NAME (1..35) FIELD # 01;**

The next series of entries are used to enter the name you want for each field and the length of each field. A field name can have a maximum length of 35 characters.

For field #01 type: **first name** and press the RETURN key.

The screen reads: **ENTER FIELD LENGTH 1..38 FIELD #01;**

Here is where you enter the number of characters you think it will take you to type the person's first name. The maximum field length is 38 characters. For our example, type: **20** and press the RETURN key.

The process will now repeat itself with a prompt for you to enter the field name for field #02.

Type: **last name** and press the RETURN key.

When you are prompted to enter the field length, type: **20** and

press the RETURN key.

For field #03 type: **address 1** and press the RETURN key.

type: **30** and press the RETURN key.

For field #04 type: **address 2** and press the RETURN key.

type: **30** and press the RETURN key.

For field #05 type: **city** and press the RETURN key.

type: **25** and press the RETURN key.

For field #06 type: **state** and press the RETURN key.

type: **02** and press the RETURN key.

For field #07 type: **zip code** and press the RETURN key.

type: **05** and press the RETURN key.

For field #08 type: **telephone** and press the RETURN key.

type: **01** and press the RETURN key.

If you wish to type just one digit when specifying field length, you can do so. Simply type the number followed by a semi-colon and press the RETURN key.

The 01 for field 8 is a mistake. We really want to type 12 for the field length; but this will show you how to correct mistakes in typing.

The screen reads:

```
MAILING LIST 08;
FIRST NAME 20;
LAST NAME 20;
ADDRESS 1 30;
ADDRESS 2 30;
CITY 25;
STATE 02;
ZIP CODE 05;
TELEPHONE 01;
TOTAL RECORDS 941

OK TO FORMAT DISK? Y/N
```

The first line shows the filename (MAILING LIST) and the number of fields in the file (08). The remaining lines show each field name and its field length. Finally, the total number of records you can save to one disk are shown (941).

To change the field length of field #08, press the **N** key (no). This will recycle you through the process of entering field names and field lengths once again, starting with the file name. If you want to change anything, simply type in a new name or field length number, and press the RETURN key. If you DON'T want to change anything, just press the RETURN key and the computer will respond with the next name or field prompt. When you come to the field length of field #08, type 12 over the 01 and press the RETURN key.

When finished, the screen again lists field names and lengths, with the appropriate changes made. This time, type **Y** (yes). The computer will ask you if you are sure. If you type N, you will return to the file manager Command mode where you can either type tw to enter the word processor or fm to enter the file manager again.

Since everything is OK, type Y once again. Your disk will be automatically formatted and the file format will be saved. After a few minutes, the screen will read:

'MAILING LIST ' tf 2a
nnn blocks free.

:PRESS RETURN

Press the RETURN key to begin entering information onto your mailing list.

ACCESSING RECORDS

The screen reads: **F>** . The F> command prompt is similar to the W> command prompt you used in the word processor. The F> tells you that you are working with the file manager, and all of your commands should be file manager commands.

Beginning at the first record, type **rc1;** and press RETURN. IT IS VERY IMPORTANT THAT YOU TYPE THE SEMI-COLON following the rc1. If you do not, you may have strange characters appearing in the fields of the record. With the file manager, YOU ALWAYS FOLLOW A RECORD NUMBER REFERENCE WITH A SEMI-COLON.

You may now type someone's first name for record 001 on line one. Both upper and lower case letters are allowed. After you type the first name, press the RETURN key.

The cursor moves to line two and the screen asks for the last name for record 001. Type the last name and press the RETURN key.

The cursor moves to line three and the screen asks for the first address. Type the address and press the RETURN key.

Continue entering information until you have filled up all eight fields. If you don't have some information, and want to leave a blank space, just press the RETURN key. Don't worry about entering too many characters in a given field, the computer won't let you. You may also use the INST/DEL key and the CRSR keys to move the cursor, just as you did with the word processor.

When you reach the last field, TELEPHONE, type in the phone number and press the RETURN key.

When satisfied with all of the information, save the record to disk. In command mode, type **nr** and press the RETURN key.

Record 001 will be saved and the screen will advance to record 002. Repeat the process and enter the first name, last name, address 1, address 2, city, state, zip code, and telephone number of another person. When you are satisfied with that information, and want to save it to disk, enter command mode, type nr and press the RETURN key.

Continue entering information and saving it to disk by using the nr command. When you have entered all the information you want to, you can review what you have saved so far.

To review the records, enter command mode, type **rv1;** and press RETURN. NOTICE THAT THE SEMI-COLON once again MUST FOLLOW THE NUMBER REFERENCE. If you do not use the semi-colon, the record displayed will be the last record accessed and you will not see a sequential display of all your records.

If you do use the command correctly, employing the semi-colon, the screen will display your records one by one, beginning with number one. To pause the display, press the S key and to quit press the Q key. You may begin the review with any record number. If you wanted to start with record number 50, you would type **rv50;** and press the RETURN key.

To get a specific record, enter command mode, type **rcXX;** and press RETURN. Substitute a number for the XX. For example, if you wanted to see record number 10, you would type rc10;. If you wanted to see record number 345, you would type rc345;. In this way you can access any record in seconds! This is also useful for editing records you have stored on disk. Remember to USE THE SEMI-COLON, otherwise, the record displayed will be the last record accessed.

The search function scans the file for any record bearing a particular item of information. To search for a particular word or phrase, enter command mode, type **sr** and RETURN key.

The screen reads: SEARCH;. Type in a name that is in your mailing list and press the RETURN key. The data you enter for the search can be no longer than 38 characters. Although you may have typed the name with a mixture of upper and lower case, you can use just lower case or just upper case to initiate the search. The system will recognize any records which match the information anyway. Once a match is found, the screen will ask you if you want to continue Y/N? If you want to search for the next occurrence of the name, type Y. If not, type N and you will be back in Command mode.

If you do not remember the spelling of the name, you can do a "wild card" search. For instance, if you did not remember whether someone's last name was Smith, Smythe, or Smiths, you could type in "sm" after the screen asks SEARCH; The search works as a fragment search and will stop at each record where it finds the fragment. For instance, if you type in "jac", you would find records containing Jack Baker, Jackson Michigan, F.W. Jackson, and Jacquelyn Huber. Each record with the fragment is displayed, and you are asked whether you want to continue Y/N?

MAKING A KEY FIELD FILE

The SR command is slow in searching large files as it must search the entire disk for a particular record. By using a key field, you can create a file, which when loaded into memory, will "point" to the appropriate record on the disk. Therefore, if you search for a record in a key field file, record access time is the same as if you were using the rcXXX; command.

To create a key field file, first determine which field has the criteria by which you can more easily access a file. This might be last name, amount owed, zip code, etc. After determining this field, enter command mode, type **makekeyfield or mkf** , and press RETURN. You are warned that in order to make the keyfield, you will lose pages 2-6 of the word processing files. You must press Y to continue. If you have not yet saved the word processing files, press N to stop the process, enter command mode, type tw to return to the word processor, and save your file. Then you can re-activate the file manager with two fm commands and begin with the command mkf once again.

The screen displays CREATE KEY FIELD: ENTER KEYFIELD NUMBER:. Type the number of the field by which you will search the file in the format XXX;. Be sure to remember to type the semi-colon following the field number. The field number is displayed, and you are asked is the NUMBER OK? Press Y to continue. Press N if you want to change the number. Press Y again to begin the creation of the key field file. You are asked for a FILE NAME:, to which you respond by typing the name of the key file. Press RETURN to continue. After the file has been created, you return to command mode.

Once you have created the key field file, it is resident in memory and you can access it for key field file functions. Once you have left program operation or left the file manager to work with the spreadsheet/graphics, you must load the key file into memory to access it. In command mode, type **loadkey or lk** , and press RETURN. Type the file name in response to the screen prompt and press RETURN again. Once the key field file has been loaded you may work with it as with any data file.

To display the record number and contents of the key field in the file, enter command mode, type **showkey or sk** and press RETURN. The first fifteen records will be displayed. Continue by typing Y. Stop the display by typing N.

To find a record, in command mode, type **findkey or fk** and press RETURN. The screen asks SEARCH FOR?:. Respond by typing the information for which you are looking. The findkey is also a wild card search, although it operates somewhat differently than the SEARCH command. To get a true wild card fragment search which operates like the SEARCH command, you must type in the fragment followed by an asterisk. For example, if you type in "jac" you would not find any of the examples listed under the SEARCH explanation. Instead of finding Jack Baker, Jackson Michigan, F.W. Jackson or Jacquelyn Huber, you would find only something like Jac Mart, an EXACT MATCH to what is being searched. Additionally, this type of search will find a match if the fragment is the last fragment in a record. For example, typing in "ope", you would find David Pope but not Harvey Lopez.

To do the wild card search, you must use an asterisk, such as "jac*" or "ope*". If you type in "op*", you would find Pope, Lopez, Hopewell, Christopher or Coppelman. This fragment search allows you to embed codes within a string and then search by part of the code or the entire code.

To access the record, type "N" to the question CONTINUE Y/N? The cursor will appear on the first line of your screen, i.e., within the first field of the record. If you wish to continue searching, type "Y" to the CONTINUE question.

CHANGING RECORDS

Once you have entered information into your mailing list file, you may need to change or update something. Addresses and phone numbers change frequently.

Since you'll be making changes long after you have created the file, let's leave the file manager now, so you can start from the beginning. First, enter the word processor: enter command mode, type tw and press the RETURN key.

To return to the file manager, enter command mode, type fm and press RETURN. Make sure your formatted file manager data disk with the mailing list is still in the drive; type **fm** once more and press the RETURN key. The file will load and the screen will show you filename (MAILING LIST); the number of records in the file; the number of records you can fit on the disk; and the number of the last record accessed when the file was last used. You are in file manager command mode, signified by the F>, Let's update some of your records, and save the changes to disk.

To change the first record, enter command mode, type rc1; and press the RETURN key. The first record is displayed on the screen. Make some changes to it, such as changing the address. Remember, you can use the left/right CRSR, up/down CRSR, INST/DEL and SHIFT INST/DEL keys to edit the text.

When you are satisfied with the information, you can save it to disk by either typing nr (to move to the next record) or ud (to update record and stay in Command mode so you can search for other records).

In this case, enter command mode, type **ud** and press RETURN. The drive will save the changes to disk. When the record has been saved, the F> prompt will appear on the screen.

Find another record to change now. You can either type sr (search) or rcXX; (move to a specific record) to access a record. In this case, enter command mode, type **sr** and press the RETURN key. The screen reads: SEARCH:. Type in a last name of one of the people on your mailing list. The screen reads: CONTINUE Y/N?. Type N (no). Now look to see what record number the record on the screen is. Type **rcXX;** and press the RETURN key. Substitute the screen number for the XX (you don't need to type the zeros BEFORE the number. An example: for record 007 simply type rc7;. For record 045 simply type rc45;).

Now make some changes to the record. When you are satisfied, save it to disk. Enter command mode, type **ud** and press RETURN.

Now select another record to change. Use either the sr and rcXX; commands, or just the rcXX; command to access the record. Make some changes to it, then save it to disk using the nr command. Enter command mode, type **nr** and press the RETURN key. The drive will save the record to disk, and the next record will appear on the screen.

COPYING RECORDS

Finally, you may want to copy some of your records to other records in your mailing list file, or to other files. First you have to find the record you want to copy. Use either the sr (search) or rcXX; (move to a specific record) command to find the record. First determine the record number into which you want to copy the screen record.

Enter command mode, type **udXXX;** and press RETURN. Substitute the record number you want to copy to for the XXX. This command updates the screen record to another record and saves it to disk. Now use the sr or rcXX; commands to move to the copied record. You may now edit the copied record, if you wish. The ud command copies over any existing information, so make sure you copy to the right record.

You might sometimes have a single field which you need to duplicate over a range of records, for example, you may need to enter the same customer status code for a type of customer. Or you might have a record you want to duplicate more than one time. To accomplish either one of these procedures, enter command mode, type **repeat** , and press RETURN.

You are asked to enter the number of the REFERENCE RECORD. The reference record is the record from which you are copying information. Type the record number of the reference record using the format XXX;. Again, you are asked if you want to repeat some or all fields in the record. If you type A, all fields will be copied. If you type S, you are asked for beginning field number and ending field number. Type the response using the XXX; format.

You may use any beginning and ending field number within the field limitations of the reference record. If you want to copy only one field, set the beginning and ending field number at the same value.

The screen next displays START AT RECORD:. Enter the number of the record where you want to begin copying. In response to STOP AT RECORD:, enter the number of the record where you want to begin copying. In response to STOP AT RECORD:, enter the number of the record where you want to end the copying. In specifying record numbers, use the format XXX;. Once you have entered the appropriate record numbers, press Y to continue. After the procedure is complete, you will return to command mode.

DELETING RECORDS

To delete records from the file, you can either type over the old record, use the repeat command described above, or use a triple ampersand (&&&). If you choose to type over the old

record, use the ud or nr command to update the new record contents. To use the repeat command, duplicate a record containing blank fields into those records you wish to delete. The repeat command is especially effective if you are deleting several records in sequential order. You will find that repeating a blank record is a faster method of deleting sequentially ordered records than using the triple ampersand. In any event, if the records you want to delete are the last records in the file and appear in sequential order, the crunch command described below will only reset the highrc; (high record number) so that program operations will not include the "crunched records", although the crunched records are still in the file. Replacing these records does require the use of the repeat blank record function.

Access the record you want deleted. Type &&& in field one. In command mode, type ud to update the record. Repeat this procedure with every record you want deleted.

Once you have the records you want deleted, you need to compress the file. To do this, enter command mode, type **crunch** , and press RETURN. The records will be re-ordered, as the deleted records are removed from the file permanently. New records can then be added to the end of the file until the record limit has been reached.

SORTING RECORDS

One of the main advantages of the file manager is the ability to sort the data in your file. For example, you may want to list the mailing list you just created in alphabetical order by last name or in zip code order. You may sort your data on a maximum of three different fields.

dsXX;

To sort your mailing list in alphabetical order by last name, enter command mode, type **ds2;** and press the RETURN key. Since the sorting process uses memory in the computer normally occupied by the word processor, the screen reads: SYSTEM WILL CLEAR WORD PROCESSOR Y/N? If you had a document on the screen in the word processor and didn't want to lose it, you would press N. Then you would type tw to enter the word processor; save the document to disk using the sf command and re-enter the file manager using the fm commands.

Since you don't have any files in the word processor, everything is OK and you can press the Y key (yes). The drive will spin and the screen reads:

BEGIN DISKSORT; ON FIELDS: 02
LOADING RECORDS...XXX

tXX

The computer will sort field 2 in ascending order (from smallest to largest, or from A to Z). Blank spaces and punctuation marks are considered first, so make sure you don't have any in the first character of the last name. The XXX next to LOADING RECORDS indicates the number of the record as it is loaded into memory. When sorting begins the prompt changes to SORTING RECORDS XXX, indicating which record is being sorted at any time. The ''tXX'' is the truncation factor. Because the disk drive is relatively slow, the program loads records into memory. Depending on the size and number of the fields on which you are sorting, the sort will only occur on the first XX characters in a field. The truncation factor is shown for your reference. When the sorting process is complete, the screen responds with the F> prompt.

rvXX;

To review your sorted records, type **rv1;** and press the RETURN key. The screen will display the sorted records in the new order, from A to Z. To stop the review press the S key. The review will pause at the NEXT record after typing S. Press the RETURN key to continue. To quit the review press the Q key. IF YOU ARE NOT ACCESSING MORE THAN ONE RECORD WHEN ATTEMPTING TO USE THE REVIEW FUNCTION, BE SURE THAT YOU ARE USING THE SEMI-COLON FOLLOWNING THE RECORD NUMBER.

Notice the first record in the file is no longer record 001. A subfile of the sorted records has been created, and this subfile is used for searches, reviews, or when integrating the file manager with the word processor.

dsXX;XX;XX;

Sometimes you may want to sort your information on up to three different fields. For example, you may want to sort your mailing list so everyone in different zip code areas is sorted alphabetically. The format for a disk sort on more than one field is **dsXX;XX;XX;** . Substitute the field numbers you want to sort for the XX.

To see how this works, type **ds7;2;** and press the RETURN key. The computer will first sort your list by zip code(field 7), then by last name alphabetically (field 2). Use the rv1; command to review your new list.

Numbers

If you are sorting a field containing numbers with different amounts of digits, such as 25, 145, 7800, etc., make sure you place zeros in front of smaller digits: 0025, 0145, 7800.

Remember, the computer sorts the first digit in an ascending order (0 to 7 in this case). 00 comes before 01 which comes before 78.

Dates

When entering dates into the file manager, use the format 84/12/02 (year/month/day) instead of the normal 12/02/84 (month/day/year).

Times

Times are best entered in the military format, such as 1300 instead of 1:00 P.M. This way the computer will sort the time correctly.

highrcXXX;

Sometimes you might want to stop a sort, search, or review at a certain record number without using the Q key. You may also need to define the highest record you want printed when producing listings, labels, or reports.

piXX;

Sometimes you might want to select a subfile containing records which meet a particular set of parameters. The file manager allows you to perform this by setting a bottom range and a top range for a given field. For example, you may want to sort just those people on your mailing list with zip codes from 00123 to 00923. To do this, you would first enter the Command mode, then type **piXX;** and press the RETURN key. Substitute the field number you want to limit for XX (such as 7 -- for field 7, the zip code field).

The screen will read BOTTOM:. Simply type in your bottom parameter (such as 00123) and press the RETURN key. Next, the screen will read: TOP:. Type in your top parameter (such as 00923) and press the RETURN key. Now sort the file as you normally would, and review the file. The only records shown are those that fall in between the bottom and top range you set. The select command uses an exact match, so be careful when typing upper and lower case characters.

You may also set the same value for both the bottom and top parameters. For instance, if you wanted to list all the people in zip code 90404, you would type 90404 after BOTTOM: and you would type 90404 after TOP:. The only records which would print would be those in zip code area 90404.

Setting the same value for top and bottom criteria can create a cross-reference sub-file for you. You could for instance create

a file from picking a list of all accounts which need contact this week, sort them into date order, and print out a contact sheet. You could also sort a research file by topic, to print in outline form, and then reorganize the file to print a bibliography either alphabetically, or alphabetically by topic.

resetlist

To reset the file back to its original order, enter command mode, type **resetlist** and press the RETURN key. This command deletes all sorts and selects and sets the high record back to the maximum number of records in the file. It will not affect the actual data records.

Now that you know how to use the file manager, you'll want to print your mailing list, or merge your list with letters you have created with the word processor.

----------PRINT AND MERGE MODE----------

This mode is in reverse video

tw	**To enter WORD PROCESSOR**		
CTRL 9	**To enter Print and Merge Mode**	**CTRL 0**	**To exit Print and Merge Mode**
TYPE:	**(XX= number of field)**	**TYPE:**	**(XX = number of field)**
fm:rc	**Tells WORD PROCESSOR to read first record in file**	**eof?**	**Type at end of document -- means end of file**
ttlX;	**Causes field name to merge and print wherever typed**	**fldX;**	**Causes field data to merge and print wherever typed**
rcXX;	**Begin merging at specific record (XX)**	**#rc**	**Causes record number to print where typed**

The program is integrated because it allows files created with the file manager to be merged and printed by the word processor.

Once you have created a file with the file manager, such as your mailing list, and want to print it or merge it into a form letter, you must exit the file manager and enter the word processor. Leave your mailing list disk in the drive.

To enter the word processor, enter command mode, type tw and

press the RETURN key. The word processor will appear immediately.

As with the Print Formatting mode in the word processor, you must type all print and merge commands in reverse video. When you print your mailing list, these special commands tell the word processor to use the data in your file manager. Standard word processing formatting commands, such as margins, centering and page numbering can also be used when listing your file.

Let's print your mailing list. At line 01, column 01, hold down the CTRL key and press 9. Type: center.

Now hold down the CTRL key and press 0. Now type: Mailing List.

fm:rc

To link the file manager with the word processor requires that you indicate to the word processor that you want to use data from the file manager. This is done by typing fm in reverse video. Next you have to indicate which record to start with. This is done by typing rc in reverse video. These two commands MUST BE TYPED on the same line, with a colon between them. You can have other commands on the same line, as long as you use the COLON as the command separator. Remember to use a semi-colon after all numbers.

Notice that we put the heading "Mailing List" before the "fm:rc". When the program goes to print the format we are creating, it will only repeat printing that text or information which follows the "fm:rc". Therefore, if we do not want a heading typed before every single record, we should put the heading before the "fm:rc". To print something with each and every record, it must follow the "fm:rc" and appear before the "eof?".

To begin printing with a specific record, you must indicate the record number in reverse video immediately before the "fm:rc". The proper format is "rcXX;:fm:rc". Substitute the record number with which you want to begin for the XX;. Remember to use the semi-colon after the number, and to use the colon as a command separator. To end printing with a specific record, use the highrc command previously discussed. You first set the highrc in the file manager, then enter the word processor, and print your formatted file. The records will begin printing where indicated by the "rcXX;" or at the first record if only an "fm:rc" is used. Printing will continue for as many records as you set the highrc. For example, setting the highrc at 50 will print 50 records. By combining the highrc in command mode in the file manager and the "rcXX;" in reverse video in the word processor merge file, you can effectively print any range of

records desired.

ttlX;, fldX; and eof?

From this point on, all you need to do is specify where you want the field names and data to be printed. Field names are specified using ttlX;(title) and field data by using fldX; (field), substituting the field number for the X;. Remember to use the semi-colon after the field number.

Finally, after formatting is complete, you need to tell the computer you are at the end of the file. Type **eof?** in reverse video on the last line. This command tells the computer to increment the record number and check to see if the last record has been reached. For example, you might want to format and print your mailing list as follows. Type the ttl, fld and eof? commands in reverse video.

Note: Be sure to separate the ttl's from the fld's with regular SPACEBAR spaces, as the spacing between titles and data is not automatic. It must be inserted by you. A minimum of ONE space is required or your data will run together. An advantage of this is that if you want to define long text fields, 38 character long, you do not have to worry about breaks in words when you are printing out the record.

The merge function automatically allocates space in the document the same length as your actual data, not the same length as your field. In our mailing list, the fields for first and last name have been defined as twenty characters long. If a record belonging to John Smith were printed, only 'John' and 'Smith' would appear without any extra blank spaces.

Because of this automatic text merging feature, records will not line up across more than one column when printed. If you wish to line up the fields two or three columns across a page, enter a period as the LAST character in each field. In our example, you would type the following as field input if you wanted columnar printing.

```
          John          .
          Smith         .

<--       means to press the RETURN key
 [        means turn reverse video on:  CTRL 9
 ]        means turn reverse video off: CTRL 0
```

```
[center]Mailing list<--
<--
[fm:rc]<--
[ttl1;] [fld1;]<--
[ttl2;] [fld2;]<--
[ttl3;] [fld3;]<--
[ttl4;] [fld4;]<--
[ttl5;] [fld5;]<--
[ttl6;] [fld6;]<--
[ttl7;] [fld7;]<--
[ttl8;] [fld8;]<--
[eof?]<--
```

Now print your mailing list. Press the f1 key, type *p and press the RETURN key.

Notice the printed copy follows your screen format exactly, and that the same print format is used for each record. Remember, the printer will print your list however you format it on the screen. The titles and fields can be positioned in any order and at any place on the page. Also, more than one field can appear on the same line. Just remember to place a colon between the commands and a semicolon after any number, as you did earlier with the word processor.
Your mailing list will print from the last subfile you created with a sort or pick command, so you can choose to print your lists alphabetically, by zip code, etc.

Since one of the most common uses of a mailing list is producing labels, the following example shows you the proper format for printing labels. You must use the papersizeXX; command. This command tells the printer to advance to the next label at the appropriate time. The pagelenXX; command tells the printer how many lines of text to type before advancing to the next label. This command sees a carriage return as a line, therefore, when you set the pagelength you must remember to include enough room for the carriage returns following the format commands. An example follows.

```
[fm:rc:papersize6;:pagelen5;:<--
[fld1;] [fld2;<--
fld3;<--
fld5;] [fld6;] [fld7;<--
eof?]<--
```

When using labels larger than one inch in length, adjust the paper size accordingly. The rule of thumb is to allow a papersize of 6 for every inch of the actual papersize which you will be using. The pagelength must always be a minimum of one digit less than the papersize. If your data base is formatted in such a way that more than 3 lines are needed to print the information, insert another line and do not include a carriage return after eof?. Another alternative is to place the fld information immediately following the pagelen information as below:

```
[fm:rc:papersize6;:pagelen5;:fld1;:fld2;:<--
fld3;<--
fld4;<--
fld5;] [fld6;<--
fld7;<--
eof?]<--
```

To turn off word wrap, type **nowrap** in reverse video BEFORE your file manager data. To turn word wrap back on, type **wrapon** in reverse video AFTER your file manager data.

#rc

You may also print the actual record number with the other information. To print the record number, type #rc in reverse video wherever you want the record number to appear in your text. The print will look like this: 034. You may want to label the record number.

To identify the record number, type in the word processing form, RECORD NO., followed by #rc in reverse video. In this way, the number will be associated with a description.

MERGING THE FILE MANAGER INTO THE WORD PROCESSOR

Many times you will want to create a form letter that only needs the names and addresses changed on each letter. Instead of having to manually type in new names and addresses each time, you can use the Print and Merge mode with the word processor. The computer will automatically insert the data from the file manager into the word processed form letter.

To see how this works, type the following letter. Make sure you are in the word processor and that the screen is cleared.

```
[rc1;:fm:rc:lmarg10;:rmarg75;:]<--
January 5, 1985<--
<--
<--
[fld1;  fld2;<--
fld3;<--
fld4;<--
fld5;  fld6;  fld7;]<--
<--
<--
Dear [fld1;]:<--
<--
I am typing this letter on my new word processor.  I don't know
how  I'll  ever go back to using a typewriter after this!  I can
insert  and  delete characters and lines of text; move blocks of
text  around;  search  for  and  replace words; save and load my
documents to disk; and print them out in any format I want.<--
<--
There  is  also  a file manager on the same program, which I can
use  like  a  filing  cabinet.  I can move to, change and review
records instantly; search for a particular record; sort  records
on up to three different fields; save and load files; and merge
files into the word processor, which is what I am doing now.<--
<--
Sincerely,<--
<--
Your name<--
[nextpage<--
eof?]
```

USING THE MERGE TO PRODUCE MULTIPLE COPIES

It is possible to use the merging format commands to produce multiple copies of the same label, form, or letter. To do this, you first prepare the word processing file as if you were preparing a file that merged with the file manager. Let's prepare a shipping label as an example.

```
[fm:rc:papersize18;:pagelen10;:]<--
FROM:  Pacific Tri Micro, Inc.<--
       14072 Stratton Way<--
       Santa Ana, CA 92705<--
<--
<--
TO:    John Dealer<--
       1234 Anystreet<--
       Main Town, USA 92111<--
[eof?]<--
```

Before you attempt to print this shipping label, insert a file manager data disk. It does not matter what the record structure of the data disk is, and it does not matter if the records are all blank, so long as the disk is a valid file manager data disk. In this way, when you begin printing, the word processor will think that it is reading the file manager and begin continuously printing records. Since no fields or titles are referenced in the body copy, only the text included between the ''fm:rc'' and the ''eof?'' will be printed over and over again.

To set the number of copies you want printed, access the file manager by pressing fm. In command mode, use the highrc command to set a highrecord number equal to the amount of copies you desire printed. The labels will print continuously until the program reaches the highrc number and then printing will end.

After inserting the file manager data disk and setting highrc to indicate the number of copies desired, enter command mode in the word processor. Type *p, and printing will begin.

You can use this same technique to produce multiple copies of forms or letters as well. The only limitation is the 99 line limitation for the word processing file, since you cannot merge linked files with the file manager.

This file manager merging function can also be used to produce headers or footers on a desired document in the event that you want to position the header or footer in a different position than the default position used by the header and footer function in the word processor. After you prepare the document, create a header or footer file, which imitates the merging with the file manager. For example, let's assume you are composing a term paper and need to put the title, chapter, and page number in the chapter on the paper. To do this, you first print the term paper. Then position the paper so that printing of the following merge file will begin where you want the header or footer located.

```
[fm:rc:]<--
pagelen2;:lmarg45;:ECONOMIC BASIS WWII   I - #rc<--
[eof?]
```

The ''lmarg45;'' will begin printing the header or footer 45 spaces in from the left margin. You can choose your own designation, including a ''center'' command if you wanted the header or footer to be centered. The ''#rc'' increments the page count for the Chapter I. Set the highrc in the file manager to the number of pages in Chapter I to stop printing at the correct page number. You can then edit the above file to read ''ECONOMIC BASIS WWII II - #rc''. Set the highrc again, and you can number your second chapter and so on. Substitute your own text and formatting commands for flexibility in

designing header and footer files.

RE-CONFIGURING DATA FILES

Let's say that after entering several hundred records of information, you decide that you really should have one more field, or that some of your fields are too long. You may also decide that you would like to split the records in your data file into two separate files and eliminate a status field. You are stopped, however, by the prospect of having to type these same several hundred records into the new data file all over again. The transfer and merge commands allow you to reconfigure existing file manager data files without retyping records.

To begin the process, enter command mode, type **transfer** , and press RETURN. The screen displays MOVE FILE PROCEDURE: HAVE A WORK-SPACE DISK READY: CONTINUE Y/N?

The WORK-SPACE disk is an intermediate disk which will hold the sequential transfer file you are about to create. If there is still room on the existing fm file disk, you can save the sequential file to this disk. Because it is hard to predict whether the transfer file will fit in the remaining memory or not, however, we recommend that you use a blank formatted disk for the WORK-SPACE disk.

If you do not have a WORK-SPACE disk ready, type N to the CONTINUE Y/N? prompt, and you will return to command mode. in command mode, type **format** and press RETURN. You will be asked for file name, to which you respond by typing the name of the disk (up to sixteen characters) and the id number (any two digits).

The screen displays BE SURE FM DATA DISK IS IN DISK DRIVE: PRESS RETURN. The FM data disk it is referencing is the source disk. The source disk is the FM data disk containing the records which you want to copy to the sequential transfer file. Insert this disk in the drive, and press RETURN.

You are now asked ALL FIELDS OR SOME FIELDS A/S? If you type A, all fields in the records will be copied. If you types S, you will be asked to ENTER FIRST FIELD #? and the LAST FIELD #?. Respond to these prompts with the number of the beginning field and the ending field which you want copies. For example, if you want to transfer the information from fields 3 through 7 of the source disk records, you would respond to first field # with a 3; and to last field # with a 7;. The field number should be followed by a semi-colon, for example, 1; or 10;. After you enter the field number, the screen asks NUMBER OK?: XXX, with XXX signifying the actual field number which the system has processed. If this field number agrees with the field number you wanted to enter, press Y to continue. If you inadvertently

forgot the semi-colon so that the field number has defaulted to 001, or if you pressed the wrong number key, press N to cycle through the process again.

Your beginning and ending field numbers can be any number from the first field to the last field in the record structure. You can choose to copy as little as one field by setting the beginning and ending field numbers to the same value. In some instances where you want to copy certain fields, then leave several fields out, and resume copying the rest of the fields, you will need to make two transfer files. For example, you may want to copy fields 1 through 7, and fields 10 through 15 of a 17-field FM data file. To do so, create two transfer files, one beginning at field 1 and ending at field 7, and the second beginning at field 10 and ending with field 15.

Once the fields have been determined, the screen displays START AT RECORD:. Respond by typing the record number where you want to begin copying. Again, use the format, XXX;, being sure to type a semi-colon after the record number. You are asked is the NUMBER OK?: XXX. If the starting record is correct, type Y. If not, type N to re-start the process. Repeat the procedure when you are asked for STOP AT RECORD:. The LAST RECORD copied to the transfer file is displayed.

If you are working with a sorted or picked file, you can use the record number according to its sorted or picked order to specify beginning and ending records. In this way, if you have created a sub-file, you do not have to resetlist to transfer records. If, however, you had set the highrc; before the transfer, you cannot set the ending record number at a record higher than the highrc;.

Once the sequential transfer file has been created, you need to insert the WORK-SPACE disk to store the data. The screen displays INSERT WORK-SPACE DISK (IF DIFFERENT): PRESS RETURN. After you have inserted the disk and pressed RETURN, answer Y to continue. In response to FILE NAME:, type a name for the transfer file. Once this has been done, you return to the initial file manager entry screen:

INSERT FM FILE DATA DISK
AND TYPE FM OR NEWFM

At this point, you should remove the WORK-SPACE disk from the drive. If you are going to continue the merge procedure, insert the destination disk into the drive. The destination disk is the formatted FM data disk which will accept information from the WORK-SPACE disk. If you do not want to continue the merge mode at this point, insert any FM file data disk and continue with operations. Be sure to initialize an already existing FM file data disk with the FM prompt before proceeding.

If you have not yet formatted the destination FM file data disk, insert a raw blank disk, press NEWFM, and follow the procedure for formatting a file manager data file. If you wish to duplicate the same format as the existing FM file, insert a raw blank disk, press **OLDFM & and press RETURN throughout the** duplication.

Once you have initialized the system by inserting the destination FM file data disk, you can proceed with the merge command. Enter command mode, type **merge** , and press RETURN. You will be asked to INSERT WORK-SPACE DISK (IF DIFFERENT): PRESS RETURN. Remove the FM disk and insert the work-space disk before proceeding. The screen then asks you for FILE NAME:. Type the name of the transfer file you want to merge to the destination disk.

You are then asked ALL FIELDS OR SOME FIELDS A/S? This question relates to the field structure of the destination disk not the source disk. If you want the fields to begin merging into field one of the destination disk and fill up the remaining fields sequentially, answer A. If you want the fields to begin merging into any other field but field one and then fill up the remaining fields sequentially, type S.

If you type S, ENTER FIRST FIELD #:. Type the number of the field where you want the data to begin merging. For example, you may want to begin at field 4;, regardless of the beginning field number of the source disk. Be sure that you use the semi-colon after field and record numbers. To continue press Y.

You are now asked START AT RECORD:. Type the record number where you want the data merging to begin. The records will begin merging at this number, XXX;, and fill up the records from this number forward until the transfer file has been completely merged into the destination disk. Press Y to continue.

The screen tells you to BE SURE FM DATA DISK IS IN DISK DRIVE: PRESS RETURN. Remove the WORK-SPACE disk and insert the FM destination disk. Press RETURN to continue. After the merging is complete, the LAST RECORD is displayed. Press RETURN to display the initial file manager entry screen.

OTHER COMMANDS

delete

The delete command will delete all files, exclusive of FM data files, from a disk. You may use it to delete word processing files, spreadsheet files, or transfer files on a work-space disk.

Although you should not perform a validate or collect procedure on a disk contining an FM data file, you may inadvertently do so. Once this is done, the file manager data file loses its order and you may receive some very funny results. Use the setbam command to restore an FM data file to its original structure. DO NOT USE IT ON A DISK CONTAINING AN FM DATA FILE WHICH HAS NOT BEEN COLLECTED OR VALIDATED.

SPREADSHEET

The spreadsheet is set up like an accountant's ledger, with rows and columns identified by the letters 'R' and 'C'. The rows and columns that make up the spreadsheet intersect at a 'cell'. These cells can hold numbers, labels (like SALES), or formulas. When the spreadsheet first appears, the default number of cells is 850, with 50 rows and 17 columns. A newsize command lets you resize the spreadsheet to a maximum of 99 rows and 63 columns.

To enter the spreadsheet, enter command mode, type **tc** , and press the RETURN key. The following screen will appear:

```
----------------------------------------
                C1          C2          C3
R 1 [           ]
R 2
R 3
R 4
R 5
R 6
R 7
R 8
R 9
R10
R11
R12
........................................

 R;C  1;1    ! NUMERIC        50 17 MANU.

----------------------------------------
```

Only 20 rows and 6 columns are visible on the screen at one time. The intersection of row 1 and column 1, called a cell, is indicated by the large cursor block at R 1 and C 1. This is your current cell location, shown in the status line under the cells as R;C 1 1. The R stands for Row and the C for Column. A cell can hold a number (NUMERIC), label (TEXT), or formula (FORMULA).

The status line also shows you the data type of the cell (NUMERIC), the number of rows and columns in the spreadsheet (50 17), and whether you are in manual or automatic mode (MANU.). Below the status line is the command and data entry line, indicated by the C> and the flashing white cursor.

----------EDITING MODE----------

Press these keys to control the cursor

CRSR	Move down one row	SHIFT CRSR	Move up one row
F7 or C= and R		Move right one column	
F8 or C= and L		Move left one column	
F2	To enter text mode	F3	To enter formula mode
F4	To enter numeric mode		

CELL CURSOR UP AND DOWN

To move down a row, press the up/down CRSR key once. The cell cursor moves to row 2, column 1 (or 2;1). Press the up/down CRSR key once again. The cell cursor moves to row 3, column 1 (or 3;1). Now hold down the up/down CRSR key until the cell cursor stops at row 50, column 1 (or 50;1). The screen 'scrolls' downward so you can get a window on all 50 rows.

To move the cell cursor up one row, hold down the SHIFT key and press the up/down CRSR key once. The cell cursor moves to 49;1. Now hold down the SHIFT key AND the up/down CRSR key until the cell cursor is back at 1;1.

CELL CURSOR LEFT AND RIGHT

To move the cell cursor one column to the right, press F7 or the Commodore LOGO key (C=) and the R key together. The cell cursor moves to 1;2. Press F7 or C= and R once again. The cell moves to 1;3. Now hold down either key combination until the cell cursor stops at 1;17. The screen scrolls to the right so you can get a window on all 17 columns.

To move the cursor one column to the left, press F8 or the Commodore LOGO key (C=) and the L key together. The cell cursor moves to 1;16. Now hold down the F8 key until the cell cursor is back at 1;1.

ENTERING TEXT, FORMULAS AND NUMBERS

To enter numbers into a cell, you must be in NUMERIC mode. The spreadsheet defaults to NUMERIC mode automatically. To enter NUMERIC mode after accessing a cell, press **F4**.

With the cell cursor at 1;1, type 1000 and press the RETURN key. The data appears at cell 1;1. To enter data into a cell, you must enter the data on the command line AND press the RETURN key.

To enter text into a cell, you must be in TEXT mode. Press the F2 key (hold down the SHIFT key and enter command mode), type label and press the RETURN key. The word label will replace the 1000 in cell 1;1. Now press the F4 key, to enter NUMERIC mode again. The 1000 is still there. In this way you can label a cell with a name, and find that cell later by simply calling up the name.

To enter a formula into a cell, you must be in FORMULA mode. Press the **F3** key. Notice the word label on the command line. You may enter a number, text, a number and text, or a number and a formula. Type **#1 + #2** over the word label and press the RETURN key. A 3 will appear at the cell cursor and the command cursor will switch to NUMERIC mode to give you the answer, 3. Since there must be a way to tell a number in a cell from the cell coordinates (like 1;2), always precede a number with the pound sign, a #. So #1 + #2 means 1 + 2, or 3.

You may also use the INST/DEL and left/right CRSR keys to edit your entries, as with the Word Processor. This makes it extremely easy to correct mistakes or change data.

Now that you know how to move around the spreadsheet and enter numbers, text and formulas, let's move on to the Command mode.

----------COMMAND MODE----------

Press F1 or C= and C To enter command mode
Press C= and Q To repeat the last command

fd	**Format data disk**	**ex**	**Exit to menu**
tc	**To SPREADSHEET**	**tw**	**To WORD PROCESSOR**

ha To split the screen into upper and lower half

fu To return to full screen (program currently operating)

newsize nn;nn Resize cell matrix size to rows and columns

CTRL and 1	**Changes foreground color**	**CTRL and 2**	**Changes command line color**

Editing Commands

hom	**Move to cell 1;1**	**man**	**Calculates single cell**
cins	**Insert a column**	**cdel**	**Deletes a column**

rins	Insert a row	rdel	Deletes a row
gotoR;C	Move to a specific cell R;C		
goto[label] or @label	Move to a specific cell with [label]		
aut	Recalculates entire spreadsheet w/each cell update		
fre	Protects cell from being changed during calculations		
thaw	Turns off freeze command on a cell		
ccoC;	Copies column C to column of current cursor position		
rcoR;	Copies row R to row of current cursor position		
copy R;C	Copies cell R;C to cell of current cursor position		
fit R;C	Copies formula from cell R;C to cell of current cursor position, making relative adjustments		
filemap R;C	Creates word processing file to be positioned within a word processing document (in w/p, use la to load spreadsheet files created with filemap) Reads from current cell position to cell R;C		
printmapR;C	Prints a block of data from current cell position to cell R;C		

File Commands

sf	Save a file	df	Delete a file
lf	Load a file	cm	Clear screen memory
load64	Loads 64/+4 files		

Format Commands

leftj	To left justify numbers in a cell	float	Floating point format
rightj	To right justify numbers in a cell	$$	Dollar format

The Command mode works the same way it does in the Word Processor; simply press the F1 or C= and C keys every time you want to type in a new command.

You can also hold down the **C= key and press the Q key** to repeat the LAST command. This will save you the effort of typing in the same command over and over.

The spreadsheet first appears as 17 columns and 50 rows. You can redefine the size of the spreadsheet by using the newsizeNN;NN command. To do this, enter command mode, type newsize NN;NN, substituting the number of rows for the first NN, and the number of columns for the second NN. The maximum spreadsheet configuration is 99 rows by 63 columns, a total of 6,237 cells.

The best way to learn the spreadsheet is to create a model, enter some data, and perform some calculations. Let's create a simple checkbook that automatically calculates the balance. First, let's clear the screen.

EDITING COMMANDS

CLEARING MEMORY

To clear screen memory, enter command mode, type **cm** and press the RETURN key. The screen will ask: ARE YOU SURE Y/N. Press the Y key (yes) and the screen will clear. You can't restore a screen once you have cleared it, so make sure you really want to clear memory each time you type this command.

The first step in creating a checkbook, or any other spreadsheet, is to enter column headings. A normal checkbook entry requires the date, description, check number, deposit amount, check amount, and balance.

Press the F7 key or C= and R keys twice to move the cell cursor to 1;3. Press F2 to enter TEXT mode, type Checkbook and press the RETURN key. The maximum number of characters displayed in a cell is 11, but you may enter up to 74 characters on the command line. The bar to the left of TEXT on the status line shows the cutoff point for cell characters. Since only the eleven characters can be printed, however, if you have more than 11 characters you want printed, it is better to run your text over several columns or use abbreviations.

MOVING THE CELL CURSOR

Instead of using the up/down CRSR, F7 and F8 keys to move the cursor around, you can use commands to go directly to any cell. To move the cell cursor to 1;1, enter command mode, type **hom** and press the RETURN key. This will work from anywhere on the spreadsheet.

To move the cell cursor directly to cell 3;1, enter command

mode, type goto3;1 and press the RETURN key. The cell cursor moves instantl to the given cell. This command will save you time moving around the spreadsheet.

While at 3;1, press the F2 key to enter TEXT mode, type Check # and press the RETURN key. Remember, you can use the INST/DEL and left/right CRSR keys to edit any mistakes or changes.

Press the F7 key or the C= and R keys once to move the cell cursor to 3;2. Press the F2 key to enter TEXT mode, type Date and press the RETURN key.

Now move the cell cursor to 3;3. Enter command mode, type goto3;3 and press the RETURN key. Press the F2 key, type Desc. and press the RETURN key (Desc. is short for Description).

Move to 3;4. Notice the screen scrolls to the right, as before. Press the F2 key, type Deposit Amt. and press the RETURN key.

Move to 3;5. Press the F2 key, type Check Amt. and press the RETURN key.

Move to 3;6. Press the F2 key, type Balance and press the RETURN key.

Enter Command mode, type goto4;1 and press the RETURN key.

To make the checkbook easier to read, let's underline the column headings. Press the F2 key to enter TEXT mode, type ---------- (11 dashes) to underline Check # and press the RETURN key. Move to 4;2. Instead of typing an underline again, you can use the copy command to copy data from one cell to another.

COPY DATA COMMAND

To copy 4;1, enter command mode, type **copy4;1** and press the RETURN key. The copy command will copy all the data from the cell you specify to the cell where the cursor is positioned.

REPEAT COMMAND

Move to 4;3. You may use the repeat command to place another underline in cell 4;3. Simply hold the **C= key and press Q.**

The underline will be repeated. Continue moving across the columns and C= Q until you reach 4;6, to underline the entire row. Press the F1 key, type goto5;2 and press the RETURN key.

While at 5;2, press the F2 key, type 1/1/85 and press the RETURN key. Now move the cell cursor to 5;3, using either the f7 key or the goto command. Press the F2 key, type Opening Bal.

and press the RETURN key.

Now that some of the column headings, dates and descriptions are in place, you are ready to enter some data. Entering numbers is similar to entering text, and since the Spreadsheet defaults to NUMERIC mode for each cell, you won't have to press the F4 key every time.

Move the cell cursor to 5;6, type 1000 and press the RETURN key. This is your opening balance. Notice how the text is automatically left justified and the numbers are right justified.

Now you are ready to enter the first check. Move the cell cursor to 6;1. Press the F2 key, type 100 and press the RETURN key. Even though 100 is NUMERIC, typing it in the TEXT mode will left justify the numbers.

Move the cell cursor to 6;2, press the F2 key, type 1/2/85 and press the RETURN key.

Move the cell cursor to 6;3, press the F2 key, type Mortgage and press the RETURN key.

Move the cell cursor to 6;5. Type 600 (DO NOT press F2 this time; you want to enter a number here) and press the RETURN key. Now move the cell cursor to 6;6, under Balance.

ENTERING FORMULAS

You are now ready to enter a formula. Your checkbook balance equals the previous balance, plus deposits, minus checks:

Balance = Previous Balance + Deposits - Checks

Looking at the checkbook, the Previous Balance is in 5;6 (1000); the Deposits are in 6;4 (there are none); and the Checks are in 6;5 (600). We want the new Balance to go into 6;6, where the cell cursor is.

So now our formula looks like this:

Balance = Previous Balance + Deposits - Checks

6;6 <---- 5;6 + 6;4 - 6;5

Press the F3 key to enter FORMULA mode, type 5;6 + 6;4 - 6;5 and press the RETURN key. The new balance, 400, will appear in cell 6;6. Since this formula will work for the balance of every row, you can use the fit command to copy the formula from one cell to another.

COPY FORMULA COMMAND

Move to cell 7;6. Enter command mode, type **fit6;6** and press RETURN. A new balance of 400 will appear at 7;6. Press the F3 key to enter FORMULA mode, and notice the formula has been slightly changed to 'fit' the new cell. This formula stays in this cell until you change it, and will correctly calculate your new balance after you enter more data.

Move the cell cursor to 8;6. Repeat the fit command by holding down the **C= key and pressing the** Q key. A new balance of 400 will appear at 8;6. Now repeat the fit command in cells 9;6, 10;6 and 11;6 by using the repeat command. You can press the F3 key after each repeat to check the formulas, if you wish.

The fit command (fitR;C) and repeat command (C= Q) are extremely powerful spreadsheet tools. The fit command will adjust to the specifics of each new row and column instantly, and the repeat command will speed up your data entry considerably.

Now that you have entered the formulas down through 11;6, you can enter some more data for the checkbook. Enter the data as follows, and ignore the balance of 400 in rows 7 through 11. REMEMBER TO PRESS THE F2 KEY WHEN YOU WANT TO ENTER TEXT (the check #, date, and description). Press the RETURN key to enter the data in each cell.

	C 1	C 2	C 3	C 4	C 5	C 6
R 1			Checkbook			
R 2						
R 3	Check #	Date	Desc.	Deposit Amt	Check Amt	Balance
R 4						
R 5		1/1/85	Opening Bal			1000
R 6	100	1/2/85	Mortgage		600	400
R 7		1/3/85	Deposit	500		
R 8	101	1/10/85	Gas		50	
R 9	102	1/15/85	Electric		15	
R10		1/20/85	Deposit	700		

MANUAL MODE

Move the cell cursor to 7;6. The balance has not changed. This is because you are in manual calculation mode (the MANU. on the status line). In manual mode, a formula is only calculated when you press the RETURN key in the cell. Press the RETURN key now. The number will change to the correct balance, 900. To calculate the remaining balances, you can either cursor down to each cell with a formula and press the RETURN key, or enter automatic mode.

AUTOMATIC MODE

To enter the automatic mode, enter command mode, type **aut** and press the RETURN key. The screen reads WORKING.. as the calculations are made. All of the 400's will change to the correct balance for each row, computed according to the formula you 'fit' to each balance cell. Notice the MANU. on the status line has changed to AUTO. You may switch back and forth between these two by simply typing **manu or auto** while in command mode.

LOCKING A CELL

There may be times when you want to keep a particular cell constant, and not change its value during automatic calculations. You can use the freeze command to accomplish this. To see how this works, leave the cell cursor at 7;6. Let's 'freeze' the value 900, so it won't change when you recalculate the spreadsheet. In command mode, type **fre** and press the RETURN key. The screen reads WORKING.. and a * will appear on the status line, indicating a freeze on the cell.

Now move the cell cursor to 7;5. Type **50** and press the RETURN key. You have added a check for 50, which would normally reduce the remaining balances by 50 in the automatic mode; but since you 'froze' the balance in 7;6 at 900, the balances remain constant.

UNLOCKING A CELL

To remove the freeze command, use the thaw command. Move the cell cursor to 7;6. In command mode, type **thaw** and press the RETURN key. The screen reads WORKING.. and the * will disappear from the status line, indicating the freeze has been removed from the cell. The remaining balances show the debit of 50 now.

Move the cell cursor back to 7;5, type **00** and press the RETURN key to remove the 50 and return the checkbook balances to normal.

Sometimes you may want to insert or delete rows and columns. As with the word processor, this is a simple matter of typing commands in the Command mode.

In command mode, type **home** and press the RETURN key.

INSERTING AND DELETING COLUMNS AND ROWS

To insert a column at column 1, enter command mode, type **cins** and press the RETURN key. The screen reads WORKING.. and a blank column will be inserted at column 1, with the rest of the

data shifting one column to the right.

To delete the blank column, enter command mode, type **cdel** and press the RETURN key. As before, the screen reads WORKING.. and the column will be deleted.

Move the cell cursor down one row to 2;1.

To insert another blank row, enter command mode, type **rins** and press the RETURN key. The screen reads WORKING.. and a blank row will be inserted at row 3.

To delete the blank row, enter command mode, type **rdel** and press the RETURN key. As before, the screen reads WORKING.. and the row will be deleted. In this way you may insert and delete rows and columns wherever you want in your spreadsheet. Just remember a column insert shifts everything to the right and a row insert shifts everything down.

Note: Check your formulas after using these commands. If the formulas are no longer correct, reenter them using the fit command.

COPYING COLUMNS AND ROWS

You may also copy a column or row to another column or row. Let's copy row 3 into row 14. Move the cell cursor to 14;1. In command mode, type **rco3;** and press the RETURN key. Always follow the number of the row you want copied with a semi-colon.

Now let's copy column 6 into column 8. Move the cell cursor to 14;8. In command mode, type **cc06;** and press RETURN. Always follow the number of the column you want copied with a semi-colon.

Now delete column 8 and row 14 using the cdel and rdel commands. You may leave the cell cursor at 14;8 to do this, as the cell cursor can be ANYWHERE in the column or row.

FORMAT COMMANDS

LEFT AND RIGHT JUSTIFICATION

Text defaults to the left margin and numbers default to the right margin. To see how to move numbers to the left, move the cursor to 7;4, enter command mode, type **leftj** and press RETURN twice. Now move the cell cursor to 10;4 and press the RETURN key ONCE to left justify the number 700. Once you have typed the justification command simply move the cell cursor over whatever numbers you want to justify and press the RETURN key. To move the numbers back to the right, leave the cursor at 10;4, enter command mode, type **rightj** and press RETURN twice. Move

the cell cursor to 7;4 and press the RETURN key ONCE. You cannot justify text in the right margin automatically, but you can use the INST/DEL and SHIFT INST/DEL keys to align your text as you enter it into a cell.

FLOATING POINT, DOLLAR AND INTEGER FORMATS

The spreadsheet allows you to format numbers three ways: $$ (dollar -- 00.00), int (integer --decimals are rounded off to whole numbers) and float (floating point -- 1.1). The spreadsheet defaults to floating point, which is accurate up to 10 digits. Once you change the format of a number in a cell, you will remain in that format until you change again. THE SIMPLEST THING TO DO IS TO SET YOUR NUMBER FORMAT BEFORE YOU START.

Move the cell cursor to 5;6. To change to the dollar format, enter command mode, type $$ and press the RETURN key.

The screen reads WORKING.. and the command line changes to 1000.00. To change cell 5;6 to 1000.00, press the RETURN key again.

Press the up/down CRSR key to move the cell cursor 6;6. Since you've already changed the format, all you have to do to change 400 to 400.00 is press the RETURN key. Using the up/down CRSR key and the RETURN key, change the remaining cells to dollar format

WINDOWING -- VIEWING THE SPREADSHEET AND WORD PROCESSOR TOGETHER

Up to now, you've only been working with the spreadsheet OR the word processor on the screen. But through a process called 'windowing', you can view the spreadsheet AND the word processor at the same time. This also makes it easier to transfer data from the spreadsheet to the word processor.

With the Checkbook spreadsheet still on the screen, move the cell cursor to 1;1.

To split the screen into two windows, enter command mode, type ha and press the RETURN key. The word processor operates in the top half of the screen and the spreadsheet operates in the bottom half. After typing ha, you are still in the spreadsheet, indicated by C> . You may perform all the commands; the only difference is that the number of rows displayed has been reduced.

You need not be in the spreadsheet to access the half screen mode. You can also split the screen in two halves from command mode in the word processor. In command mode, type ha. It will

look as if half of your word processing page has disappeared. If you cursor through your text, you will see that it scrolls only in the top half of the screen. In command mode, type tc, and the spreadsheet will appear on the bottom half of your screen.

To enter the word processor, enter command mode, type tw and press the RETURN key. The white cursor appears at the upper left hand corner of the screen, and the L=01 C=01 appears at the bottom left hand corner. You may now operate the word processor as you normally would (if you haven't studied the word processor yet, read the tutorial at the beginning of this manual). You may perform all the word processor commands; the only difference is that the number of lines displayed has been reduced.

Being able to view the spreadsheet while typing a document is useful if you are using the spreadsheet to make calculations that will later be entered into the word processor, or if you want to actually transfer data from the spreadsheet to the word processor. Since ALL printing functions are done through the word processor, you'll have to transfer your data before you can get a printed copy.

To move back and forth between the programs while windowing, simply enter command mode and type **tw or tc.**

To continue with this exercise, make your last command tw.

To return to full screen, enter command mode, type **fu** and press RETURN. When using this command, the full screen program will be whichever one you were last operating in. If you had been in the spreadsheet before the fu comand, a full screen spreadsheet would have appeared.

Note: The file you are working with in the spreadsheet or word processor will be retained in memory when you transfer operation from one to the other. You don't have to worry about losing a file.

To enter the spreadsheet again, enter command mode, type **tc** and press the RETURN key. Now split the screen into two windows. Enter command mode, type **ha** and press the RETURN key.

TRANSFERING DATA FROM THE SPREADSHEET TO THE WORD PROCESSOR

The program transfers data from the spreadsheet to the word processor through the filemap command. Once data is transferred to the word processor, the data can be edited, formatted, and printed like a normal document.

The **filemapR;C** command treats the data in the spreadsheet as a block of text. To transfer the data, you have to position the cell cursor in the upper left hand corner of the block and specify the row and column (R;C) of the lower right hand corner. Let's transfer the entire Checkbook to the word processor.

Move the cell cursor to 10;6, so you can see that this is the lower right hand corner of the block we want to transfer. Now move the cell cursor back to 1;1, which is the upper left hand corner of the block we want to transfer.

Enter command mode, type **filemap10;6** and press the RETURN key. When asked for a filename, type test and press RETURN. The entire data block is saved as an ASCII transfer file called "test" and can be positioned in the word processor by using the la command. To see the transfer, enter command mode, type tw and press the RETURN key. Use your keys to position yourself at line 10, column 01. In command mode, type **la** . When asked for a filename, respond by typing "test". Your spreadsheet data is now part of a word processing document.

In this way you can merge your spreadsheets into your text at any place in the document. Simply position the word processing cursor where you want the data to go before giving the la command. Make sure you set your word processing margins to a sufficient width to accomodate the spreadsheet data. If you have your margins set at 10; and 70;, for example, you can only fit in five columns of printable spreadsheet information. Since each column contains 11 characters, five columns would have 55 characters, the maximum which could fit into a 60-character text space. If you are going to transfer seven columOs, reset the margins to 00; and 77; and turn the word wrap off. The nowrap format reverse video command maintains the integrity of the spreadsheet columns. You can reset margins and word wrap when you return to straight text mode. Since the word processor assumes an 80-column physical size for the paper, using compressed printing mode will not allow you to print more than 7 columns from the spreadsheet.

PRINTING A SPREADSHEET

If you want to print the spreadsheet without having to create a transfer file to the word processor, the command **printmapR;C** can be used. The printmap command also treats the data in the spreadsheet as a block of text. To mark the beginning of the block, you have to position the cursor in the upper left hand corner of the block. To mark the end of the block, specify the row and column (R;C) of the lower right hand corner.

Move the cell cursor to 10;6, so you can see that this is the lower right hand corner of the block you want to print. Now move the cell cursor back to 1;1, which is the upper left hand

corner of the block you want to print.

Enter command mode, type **printmap10;6** and press the RETURN key. The printer will begin printing the Checkbook example exactly as it appears on the screen.

USING LABELS

The spreadsheet lets you give a text label to a cell and then use this label to find the cell later. Remember, each cell in the spreadsheet can have a number; text; a formula; a number AND text; or a number AND a formula. If you put two values in every cell, however, you will use up memory and will not be able to use all the cells available. If this happens, an OUT OF MEMORY error will occur.

Move the cell cursor to 6;6. First, let's clear our balances so we can start fresh. Press the F2 key to enter TEXT mode, and type blanks over the previous formula by holding down the SPACEBAR until the formula has been erased. Press the RETURN key. This is one way to erase a cell.

Move the cursor to 7;6. Press the F2 key, and repeat the previous process, erasing the formula.

Erase 8;6, 9;6, and 10;6 using the copy command. Copy any blank cell to these cells. The only balance remaining in the Balance column should be the initial 1000.00.

Move the cell cursor to 5;6. Instead of the old formula

5;6 + 6;4 - 6;5

to give us the new balance, let's substitute labels for the cell coordinates:

5;6 (the previous balance)	becomes	p bal
6;4 (deposits)	becomes	dep
6;5 (checks)	becomes	chk

With the cell cursor at 5;6, press the F2 key to enter TEXT mode. Type **p bal** and press the RETURN key. P bal will appear in the Balance column. To get the 1000.00 back, press the F4 key, then press the RETURN key. Cell 5;6 is now labeled **p bal**.

Move the cell cursor to 6;4. Press the F2 key, type dep and press the RETURN key. 'Dep' will appear in the Deposit Amt column. To get the 0 back, press the F4 key, then press the RETURN key. Cell 6;4 is now labeled **dep**.

Move the cell cursor to 6;5. Press the F2 key, type chk and press the RETURN key. 'Chk' will appear in the Check Amt column. To get the 600 back, press the F4 key, then press the

RETURN key. Cell 6;5 is now labeled **chk** .

Move the cell cursor to 6;6. Since the cells used for the formula are labeled, you can rewrite the old formula using the new labels. Instead of:

5;6 + 6;4 - 6;5

The formula looks like this:

p bal + dep - chk

To enter the formula using labels, press the F3 key, type [p bal] + [dep] - [chk] and press the RETURN key. A new balance of 400 will appear at 6;6.

WHEN USING LABELS IN FORMULAS, ALWAYS ENCLOSE EACH LABEL IN A SET OF BRACKETS OR THE COMPUTER WON'T UNDERSTAND YOU!

You can move to your labeled cells by using the goto command. One way to move to 6;4 would be to type **goto[dep]** .

As an alternative, type **@dep** and press RETURN. The cursor will move to 6;4. In this way you can label the cells you work with most frequently, then use those labels in formulas and as names for those cells. This will help make things more familiar to you and will speed up your work.

The fit command does not apply to cells with labels. The reason for this is that cell labels are unique to that cell, therefore, the labels cannot be adjusted in a relative restatement of a cell formula.

Now that you have the Command mode under control, you can move on to learn more about formulas, or go back and experiment some more with the spreadsheet.

----------FORMULA MODE----------

Press F3 to enter formulas

Arithmetic Operators:

+ (addition) * (multiplication)
- (subtraction) / (division)

^ (raises the number or cell preceding the up arrow to the power following the up arrow)

<-- (assigns a formula to a cell; scan operators must be parentheses)

subR;CtoR;C Subtracts a series of numbers

	in a row (R) or column (C)
mltr;CtoR;C	**Multiplies a series of numbers in a row (R) or column (C)**
divR;CtoR;C	**Divides a series of numbers in a row (R) or column (C)**
minR;CtoR;C	**Finds the minimum value in a row (R) or column (C)**
maxR;CtoR;C	**Finds the maximum value in a row (R) or column (C)**

In addition to entering your own formulas for cells, you can use the above formulas to add, subtract, multiply, and divide rows or columns. You can also find out minimum and maximum values for individual rows and columns.

Let's add column 5, the Check Amt. column. Move to cell 13;5. Press F3, type **sum6;5to11;5** and press the RETURN key. The total amount of checks written equals 665.

Now move to cell 13;6. Let's find the highest balance in column 6. Press F3, type **max5;6to11;6** and press RETURN. The largest balance, or maximum value, equals 1535. In this way you can perform complex operations on rows or columns of data.

Formulas are evaluated from left to right, unless parentheses are used. Operations within parentheses are performed FIRST, then the process continues from left to right. You may only have ONE set of parentheses in a formula. For example: #.2 * (1;2 + 1;3) The 1;2 + 1;3 is added first, then multiplied by .2. Always precede numbers with a # to distinguish the number from a cell coordinate. You may also use labels and parentheses (remember to enclose the labels in brackets!) in one formula. For example: [p bal] - (#.13 * #3). The (#.13 * #3) is the bank charge (3 checks, 13 cents a check) subtracted from the previous balance. Other than those few rules, you can perform just about any formula you can think of.

Scientific Expression Commands:

cos	Cosine of cell where cursor is
cosR;C	Cosine of cell R;C
cos#XX	Cosine of number XX
sin	Sine of cell where cursor is
sinR;C	Sine of cell R;C
sin#XX	Sine of number XX

tan	Tangent of cell where cursor is
tanR;C	Tangent of cell R;C
tan#XX	Tangent of number XX
atn	Arctangent of cell where cursor is
atnR;C	Arctangent of cell R;C
atn#XX	Arctangent of number XX
abs	Absolute value of cell where cursor is
absR;C	Absolute value of cell R;C
abs#XX	Absolute value of number XX
exp	Natural exponent of cell where cursor is
expR;C	Natural exponent of cell R;C
exp#XX	Natural exponent of number XX
log	Logarithm of cell where cursor is
logR;C	Logarithm of cell R;C
log#XX	Logarithm of number XX

THE IFTRUE COMMAND

The iftrue command is used to evaluate an expression (such as sum6;5to11;5). Then based on whether that expression is true or false, place a value (constant or computed) into another cell. With this command you can modify the normal order of calculation.

Clear the checkbook spreadsheet from the screen and enter the following mortgage spreadsheet.

	C 1	C 2	C 3
R 1		Mortgage	
R 2			
R 3	Int. Rate		12.5
R 4	Principal		75000
R 5	Payments/Yr		12
R 6	Years		30
R 7			
R 8	Periodic Payment =		
R 9			
R10			

To use the program to calculate monthly mortgage payments, you first have to create a formula. Here is the formula for calculating interest payments:

$$\text{Monthly} = \frac{\text{Prin} * (\text{Int}/(\text{No} * 100))}{}$$

Payment 1 - (1/((1 + (Int/(No * 100))) ^ ((Yr * No) - 1))

Prin = Principal Int = Interest Rate
No = Payments per year Yr = Number of years

Since The Spreadsheet can only handle one level of nested parentheses. you have to break the formula down into smaller pieces. The answer will eventually be placed in cell 8;3.

To split up the mortgage equation, first evaluate the dividend:

Prin * (Int/(No * 100)).

Move the cell cursor to 13;1 and calculate (Int/(No * 100)). Using the table, this formula becomes 3;3/(5;3 * #100).

Press F3, type **3;3/(5;3 * #100)** and press RETURN. The answer is .0104166667.

The next expression to evaluate is Prin * (Int/(No *100)). Place the results in cell 14;1. You have already evaluated the expression in parantheses in the previous step with the answer at 13;1. All you need to do now is multiply 13;1 by the principal which is in 4;3.

Move to cell 14;1, press F3, type **4;3 * 13;1** and press RETURN. The answer is 781.25.

Now you need to calculate the expression ((Yr * No)-1) and place these results in 15;1. Using the table, this formula becomes (6;3 * 5;3) - #1.

At cell 15;1, press F3, type **(6;3 * 5;3) - #1** and press RETURN. The answer is 359.

At cell 16;1, evaluate the expression ``1 + (Int/(No * 100)).'' This expression is in cell 13;1. Press F3, type **#1 + 13;1** and press RETURN. The answer is 1.01041667.

Now, 1 + (Int/(No * 100)) ^ ((Yr * No) - 1)

becomes: 16;1 ^ 15;1

Move to cell 17;1. Press F3, type **16;1 ^ 15;1** and press RETURN. the answer is 41.2743269.

You have all the pieces of the divisor. Now,

1 - (1/((1+Int/(No * 100))) ^ ((Yr * No) - 1)

becomes: #1 - (#1/17;1)

Cursor to 18;1, press F3, type **#1 - (#1/17;1)** and press RETURN. The answer is .975771864.

The dividend is in 14;1 and the divisor is in 18;1. Move the cell cursor to 19;1. Press F3, type **14;1/18;1** and press RETURN. The answer is 800.648214. Your monthly mortgage payments would be truncated to 800.64. Note that the result is not rounded to the next highest value, i.e., 800.65.

To get the answer from 19;1 to 8;3, move to cell 8;3. Press F3, type **19;1** and press RETURN. 19;1 appears at 8;3. Since a formula must have TWO arguments (such as 3;2 + 4;2) and 19;1 is only ONE argument, you did not get the correct answer.

Press F3, type **19;1 * #1** and press RETURN. The correct answer, 800.648214 appears at 8;3.

To assign cell contents to another cell without using the copy command, type the left arrow key (<--) at the upper left hand corner of the keyboard. For example,

Press F3, type **8;3 <-- 19;1** and press RETURN.

The data in 19;1 will appear in 8;3. You can assign numbers, formulas, or logical expressions to any cell you choose using this command. For example: 4;3 <-- #250 and 5;2 <-- (2;2*#4).

In assigning a formula or logical expression only the RESULTS are assigned. The formula will not show up in the assigned cell. For example,

4;3 = #2000 iftrue 4;4 <-- 4;3 + (4;3*#.1)

If cell 4;3 is equal to 2000, then add the contents of 4;3 with 10% of 4;3, and place the result in cell 4;4, otherwise, place a 0 in the current cell.

Iftrue can use the following operators:

=	(equal to)	R;C<--	(indicates the cell where the new value
nte	(not equal to)		will be assigned)
>	(greater than)	<--#XX	(indicates the number to be assigned)
<	(less than)	not	(not true)

To see how the iftrue command works, leave the cell cursor at 8;3. The value for cell 8;3 comes from cell 19;1. Under normal operation the value for 8;3 is calculated before 19;1 is updated. Using iftrue, you can eliminate the formula in 8;3 and

cause the value to be entered for this cell after the value is calculated for 19;1. Press the F3 key, use the SPACEBAR to delete the formula and press the RETURN key.

At cell 20;1, press F3, type **19;1 >#0iftrue8;3<--19;1** and press RETURN. This expression means: if 19;1 has a greater value than 0, then put the value of 19;1 into 8;3. A 1 appears at the C> prompt, meaning true. A 0 would have appeared if the expression was false. Move the cell cursor to 8;3 and the correct number, 800.648214, will be there.

Now move the cell cursor to 3;3. Change the Int. Rate from 12.5 to 10.5. Move the cell cursor to 4;3. Change the Principal from 75000 to 50000. To activate automatic mode, enter command mode, type auto and press the RETURN key. Notice how the NEW correct answer, 457.551473 is displayed immediately in cell 8;3.

Here are some other examples of formulas:

```
3;2 + 4;2 > #0 iftrue 20;2 <-- (3;2 + 4;2)

19;1 = #10 iftrue 15;4 <-- 20;4

15;11 nte #50 iftrue 2;4 <-- (2;2 * #4)

8;4 = #100 notiftrue 6;3 <-- #100
```

Iftrue is a very powerful command. It can be used in many different applications to evaluate various cells and draw conclusions from the data, then take another action based on these conclusions. Iftrue always has three parts:

1. The expression to be evaluated. The expression can use the previous operators and can refer to a cell or formula.

2. The iftrue or notiftrue (false) command.

3. The action to be taken if the expression is true or false. The action taken is a transfer of data to a cell. The data can be a cell, a number, or the result of a formula.

GRAPHICS

The graphics application is a high resolution business graphics package. It will allow you to make line graphs, bar charts, and pie charts. Full editing capabilities are available, so that you can incorporate text into your charts and edit the graphics. In the mode called 'bit map mode', you can also draw lines from point to point, draw circles, and fill shapes. The amount of data allowed for each type of graph is:

1. Line Graph -- Plots up to 3 sets of data (variables), containing up to 50 values (elements) per variable.

2. Bar Charts -- Plots up to 3 variables of up to 12 elements each.

3. Pie Charts -- Plots one variable with nine data elements.

SPREADSHEET TO GRAPHICS COMMANDS

Enter command mode in spreadsheet F1 or C= + C

graph	**Activates the graphics application window**
total N;	**Defines the number of variables N; in a graph**
elements NN;	**Defines the number of elements NN; in a variable**
which N;	**Assigns the cells defined with gmove command to variables 1 through 3: must be given before the gmove command**
gmove NN;NN	**Defines as elements making up one variable the data in cells from the current cursor position to cell NN;NN**

You activate the graphics program from the spreadsheet. In command mode, type **graph** , and press RETURN. You are now in the graphics window. The right hand side of your screen lists various commands operational in graphics. The left hand side of your screen is the "canvas" on which the graph will be drawn. A flashing line cursor indicates that you are in bit-mapped graphics mode.

Before the program can plot a desired graph, you must define the parameters in the spreadsheet. Return to your spreadsheet by pressing tc in command mode. The first item that must be defined is the number of variables to be plotted. A variable is a set of data, such as gross sales over a twelve-month period of time. If you want to plot gross sales versus expenses versus profit, you would need to define three variables for either a bar or line graph. Enter command mode, type **total 3;**. This tells the graphics program that you will plot three sets of data. You can substitute 1 or 2 for the 3, depending on how many variables you wish to plot. REMEMBER TO PLACE THE SEMI-COLON AFTER THE NUMBER.

Next tell the system how many points of data will be plotted -- these are called elements. An individual element is "january sales." To define sales as a twelve month variable, in command mode, type **elements 12;** , and press RETURN. You can substitute other numbers for the 12, up to the maximum of 50. REMEMBER THE SEMI-COLON.

Now that the graphics system knows how many variables and how many elements it needs to plot, you must tell it which cells in the spreadsheet make up the elements of each variable. Before marking the cells as elements, tell the program to which variable these elements are to be assigned. For example, if you wanted gross sales as your first variable, enter command mode, type **which 1;** , and press RETURN. Now the elements you define will all become part of the set of variable #1, which is gross sales.

Defining the elements is similar to the filemap and printing commands. Position the cursor at the first element you wish to define. Enter command mode, type move NN;NN, and press RETURN. Substitute the row and column coordinates of the last cell you wish to define for NN;NN. As an example assume gross sales figures were in ROW 3, COLUMNS 2 through 13. To plot these as variable #1, you would position the cursor on ROW 3, COLUMN 2. Then, in command mode, you would type gmove 03;13.

COMMAND MODE

Commands	CTRL key + Letter key
CTRL + G	Creates line graph with current variables
CTRL + B	Creates bar graph with current variables
CTRL + P	Creates pie graph with current variables
CTRL + T	Enter text character mode from bit-map graphics mode: standard full character cell cursor, can input alphanumeric for labeling
F1	Returns to bit-map graphics mode from text character mode
CTRL + A	Dump screen graph to printer: Be sure to choose printer type before dumping

ptype 1; sets printer type to 1525/MSP 801
ptype 2; sets printer type to 1526/MSP 802

CTRL + X	Returns to spreadsheet
CTRL + V	Displays status screen showing current variables / elements
lp'filename'	load picture file
sp'filename'	save picture file

Creating Graphs

Enter some data on the spreadsheet, defining variables and elements as explained. Activate the graphics by typing graph. To display a bar graph, press down the CONTROL key (CTRL) and the letter key B together. A bar graph will be displayed on the "canvas" side of the screen.

To save the picture just created, type **sp'graphdemo'**, and press RETURN. If you catalog the disk, you will see a file called "graphdemo.p" on the directory. The program places the suffix ".p" to signify a picture file.

The files you saved can still be recalled. To load the files, type **lf´graphdemo´ & Notice that you do not put the suffix** ".p" at the ned of the filename when specifying it in the load command.

To clear the canvas so that you can plot another type of graph, press the £ (pound sign key) at the upper right hand corner of the keyboard next to the CLR HOME key. To display the same data as a line graph, press down the CONTROL key (CTRL) and the letter key together. A line graph will be displayed on the "canvas" side of the screen.

If you have defined more than one variable or more than nine elements in the spreadsheet, return to the spreadsheet and redefine the graphic parameters. Press the CONTROL (CTRL) key and the letter key X together. You are now back in the spreadsheet. Choose one set of data (one variable) and define no more than nine cells. Type graph to activate the graphics screen. Press down the CONTROL key (CTRL) and the letter key P together. A pie chart will be displayed on the "canvas" side of the screen.

When your line graph is displayed, the line representing the second column of negative values is marked by a . The lines are marked to help you differentiate the graphing of one variable from another. The symbol for the third variable should you have a graph with three variables is .

The first variable or column in a bar graph is solid black while the second column or variable is white outlined in black. If you had a third variable or column, this bar would be cut diagonally, half black and half white.

Labeling the Graph

Although certain alphanumeric characters will be displayed on your graph screen, you may want to label the graph further in order to customize the graph. Press the CONTROL key and the T key together. A solid block cursor appears on the canvas. This block signifies that you are now in text mode. While in text mode, you can type in any alphanumeric characters available to you on the keyboard. Simply position the cursor where you want to begin typing, and type as you normally would. The characters will appear on the screen and will print out where positioned.

If the labels are not positioned as you would like, you can use the INST/DEL keys to move the text. This editing function operates in the same way as the standard INST/DEL function.

To return to bit-mapped graphics mode, press the F1 key. A blinking line cursor should appear.

Printing the Graph

The graph can be printed on a variety of printers if properly interfaced. The interface used with a non-Commodore printer must have the ability to emulate the 1525 and must be a full graphics interface card.

Before giving the system the command to print the graph, choose your printer type. Typing ptype1; will indicate that you have a 1525/801 type printer in use. You should choose this type of printer when working with interfaces which have 1525 emulate mode as well. If working with the 1526, 802, or 803 printer, type ptype2;. The ptype defines the size of the matrix of dots which the printer uses in defining characters and graphics. If you choose the wrong ptype, your graph will look like garbage, or it may not print at all. Another thing to remember if working with non-Commodore printers and interface cards is that in order for the bit pattern to be correct, the auto line feed must be disabled. Make sure that the dip switch on the interface card which turns on auto line feed is off and that any switch which exists in the printer for auto line feed is also off. Some interfaces and printers have their dip switches inside and you will have to open them to be able to turn off the switch controlling the auto line feed. When you are working with the remaining portions of TEAM-MATE, switch the auto line feed back on as it is necessary to have it on for processing text.

To obtain a hard copy of the spreadsheet data you have graphed, press the CONTROL key and the A key together. The printing is done a dot at a time, so you may find that the printing process is slower than when printing standard text. Bit-Mapped graphics requires this style of printing on a dot matrix printer so be patient -- there is nothing wrong with your printer.

EDITING COMMANDS

CONTROL Key Commands
These commands are all activated by pressing the CONTROL key and the indicated Letter key together

CTRl + F	Fills the shape around the cursor.
CTRL + 1	Marks the current bit map cursor position
CTRL + 2	After marking position with CTRL 1, draws line from this position 1 to current position marked by CTRL 2
CTRL + C	Draws circle around position 1 marked with CTRL 1

DRAWING COMMANDS
The commands can be used to draw in the direction indicated or shapes indicated Press the letter

R Draws right L Draws left U Draws up

D Draws down E Erases line W Write line

While in the graphics window, you can also draw your own charts or edit existing ones. To obtain a clear canvas, use the L command. The screen should now be blank with a horizontal line cursor. Type **u** several times. A vertical line will appear in an upward direction. For a horizontal line, type either **l or r** , depending on the direction you desire, left or right. If you wish to draw in a downward direction, type **d** several times.

Drawing lines by using the **u,d,l,r** keys can be slow. A faster method of drawing lines from one point to another is to use the CTRL 1 and CTRL 2 commands. Move the blinking horizontal line cursor to another place on the screen. To mark the beginning point of the line,

Press **CTRL and the 1 together.**

Now move the cursor to another position on the screen and

Press **CTRL and the 2 together.**

A line will connect the two points. This line may be vertical, horizontal, or a diagonal. Using the CTRL 1 and 2 to draw lines gives you the ability to create complex shapes quickly.

Notice that the movement around the screen utilizing the graphics horizontal line cursor is significantly slower than using the text solid black cursor. For rapid movement, switch from the graphics cursor to the text cursor and back to the graphics cursor.

The CTRL 1 is also used to mark the center of a circle you might want to draw. Position your cursor and be sure that you are in graphics mode.

Press **CTRL and the C together** . A circle will be drawn around the point which you marked with CTRL 1. If the circle exceeds the boundary of the screen, you will obtain vertical lines when the boundary is exceede Therefore, be certain to position your center (CTRL 1) in such a way as to allow sufficient room for the size of circle you wish to draw.

If you want to fill the shapes you are creating, a fill command is available. Position your cursor within the shape and

Press **CTRL and the F together.**

The shape will fill. In some instances, some space may still remain blank. Keep repositioning your cursor and using the fill command to fill the shape completely. The fill command will break through the shape if the boundaries of the shape have any open space. You may use this fill command to color in alternating wedges of pie charts created from data. You may also use it to highlight the most prominent wedge in a pie chart.